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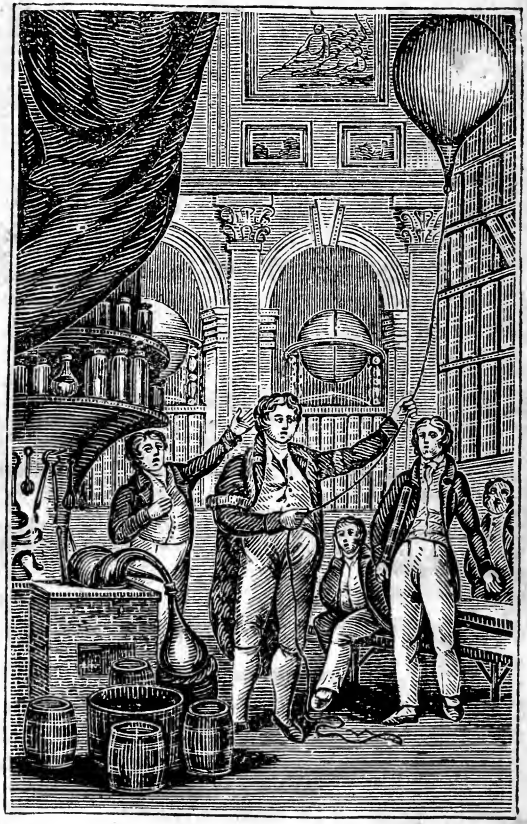

A Professor explaining the Polite Arts, to his Pupils.

A SHORT SYSTEM

OF

POLITE LEARNING,

BEING

AN EPITOME

OF THE

ARTS AND SCIENCES;

DESIGNED

FOR THE USE OF SCHOOLS.

BY AN EMINENT WRITER OF PHILADELPHIA.

A taste of every sort of knowledge is necessary to form the mind; and is the only way to give the understanding its due improvement, to the full extent of its capacity.—*Locke.*

NINTH AMERICAN EDITION, IMPROVED.

Philadelphia:

PUBLISHED BY M'CARTY & DAVIS,

NO. 171, MARKET-STREET.

Stereotyped by J. Howe.

1835.

Eastern District of Pennsylvania, to wit:

BE IT REMEMBERED, That on the seventeenth day of April, in ******* the fiftieth year of the Independence of the United States of *L. S.* America, A. D. 1826, M'Carty & Davis, of the said district, ******* have deposited in this office the title of a Book, the right whereof they claim as proprietors, in the words following, to wit:

"A short system of Polite Learning, being an Epitome of the Arts and Sciences; designed for the use of Schools. By an eminent writer of Philadelphia. 'A taste of every sort of knowledge is necessary to form the mind; and is the only way to give the understanding its due improvement, to the full extent of its capacity.' *Locke.* Ninth American Edition, improved."

In conformity to the Act of the Congress of the United States, entituled, "An Act for the encouragement of Learning, by securing the Copies of Maps, Charts, and Books, to the Authors and Proprietors of such Copies, during the times therein mentioned;"—And also to the Act, entitled, "An Act, supplementary to an Act, entitled, "An Act for the encouragement of Learning, by securing the copies of Maps, Charts, and Books, to the Authors and Proprietors of such Copies, during the times therein mentioned," and extending the benefits thereof to the arts of designing, engraving, and etching historical and other Prints."

D. CALDWELL,
Clerk of the Eastern District of Pennsylvania.

PREFACE.

IN presenting the ninth American edition of this valuable little work to the public, the editors feel gratified to observe, that, though not greatly enlarged, it has, in their apprehension, been much improved.

Numerous and important additions and alterations have been made in various parts of it. Some articles have been considerably enlarged—others, proportionably pruned and condensed. Several have been rewritten and corrected; and not a few entire new ones, framed and inserted. The language, punctuation, and definitions have all undergone a careful revision, and been rendered as perspicuous as possible;—the civil divisions, and other particulars in the Geographic department, have been duly conformed to present facts; and the more modern discoveries and improvements in natural philosophy, and other branches of science, introduced, in place of the less accurate speculations of former times; while the whole of the numerous and varied items which compose its contents, have been so classed and altered in their arrangement, as to render the work much more systematic and instructive than

any of the preceding editions. And it is, upon the whole, confidently believed, that a greater quantum and variety of matter, useful, important, scientific, and interesting, than this little volume now contains, is nowhere to be found, within the same compass.

The work now appears in a *stereotype form*, as a pledge to our schools, teachers, and other individuals wishing to avail themselves of it, that a constant and regular supply shall, in future, be always at their command.

The *Arts and Sciences*, by being wrapped up in the learned languages, and obscured by a multitude of technical terms, have long been held beyond the reach and capacity, not only of youth in general, but of maturer years also; especially, where the advantages of education have been limited. This epitome, however, will, it is hoped, bring them to the level of the most moderate capacity; and, without much expense either of time or money, furnish a tolerably correct outline and general idea of all the principal branches of useful and *Polite Learning*.

Philadelphia, March 25, 1826.

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SHORT SYSTEM

OF

POLITE LEARNING.

OF ARTS AND SCIENCES.

Question. What is meant by a Science?

Answer. A Science is a system of any branch of knowledge, comprehending its doctrine, reason, and theory; without any immediate application of it to the uses of life.

Q. What is an Art?

A. An Art is a collection of rules and precepts, for doing a thing with certainty, ease, and accuracy.

Science is knowledge in theory; *Art* is knowledge in practice. Botany is a *science;* Gardening, an *art.*

Q. How are the Arts divided?

A. The Arts are divided into *liberal* and *mechanical.*

Q. What are the Liberal Arts?

A. The Liberal Arts are those that are ingenious, and cultivated without any immediate regard to the profit arising from them; as poetry, music, and painting; rhetoric, grammar, and sculpture.

The *liberal* or *polite arts* are nearly allied to the *sciences*, and are, indeed, in many instances, the same with them. Music, for example, may be ranked either with the *arts* or *sciences*, or both. As a *science*, it teaches the just disposition, quantity, and relation of sounds. As an *art*, it enables us to express those sounds with facility and correctness.

Q. Why are they called Liberal Arts?

A. They are termed Liberal Arts because the ancients allowed them to be studied only by the *liberi*, or free persons.

In the eighth century, the whole *circle of sciences*, was made up of what was then termed, *The Seven Liberal Arts;* viz. Grammar, Logic, Rhetoric, Music, Arithmetic, Geometry, and Astronomy.

The *fine arts* are such of the mechanic arts as require the union of peculiar ingenuity, taste, and skill, in the artist; as, Painting, Sculpture, &c.

Q. What are the Mechanic Arts?

A. The Mechanic Arts are those wherein the hand and body are more concerned than the mind, and which are cultivated for the sake of the profit arising from them: as cabinet-making, ship-building, turnery, weaving, masonry, and the like; popularly known by the name of *trades.*

Q. Why are they termed Mechanic Arts?

A. They are denominated Mechanic Arts from the latin word [*machina,*] signifying a *machine;* as they are all practised by the use of certain *machines* or instruments.

Q. What are the Principal Sciences?

A. The Principal Sciences are theology, phi-

losophy, and jurisprudence; physic, rhetoric, grammar, poetry, and mathematics.

THEOLOGY.

Q. What is Theology?

A. Theology is the science which instructs us in the knowledge of God, and Divine things, and teaches us the manner in which we should serve our Creator.

Q. From what is the word Theology derived?

A. The word Theology is derived from the Greek words [*Theos logos,*] signifying *the word of God.*

Q. How is Theology divided?

A. Theology is divided into natural and revealed.

Q. What is Natural, and what Revealed Theology?

A. Natural Theology is the knowledge we have of God from his works, from the light of nature, and from reason.

Revealed Theology is that knowledge of God, which we obtain from revelation.

Q. To whom was the title of Theologist, or Divine, first given?

A. The title of Theologist or Divine was first given to St. John, the evangelist; who was, by that title, distinguished from the other three evangelists; because *their* gospels contain only the history of Christ, but that of St. John estab-

lishes his *eternal divinity*, as the word of God, and his incarnation.

RELIGION.

Q. What is Religion?

A. Religion is that worship and homage which man owes to God, as his Creator, Preserver, and Redeemer.

"The fear of the Lord is the beginning of wisdom; a good understanding have all they that keep his commandments." DAVID.

"Be particular not to neglect religion in the education of your children. In vain will you endeavour to conduct them by another path. If they are dear to you; if you expect from them credit or comfort; from religion, must be derived their happiness, and your own." FATHER GIRDIL.

"Religion, soother of all our keenest sorrows, source and refiner of all our real joys, shed thy heavenly influence on our souls; direct, animate, and crown, all our pursuits; pervade and consecrate all our thoughts, words, and actions: so, shall we answer the design of God in our creation, taste true happiness in this life, and arise to complete an immortal felicity in the world to come." DR. ASH.

Q. What is the foundation of Religion?

A. Religion is founded on the existence of a *Supreme Being*, who requires the love, service, and adoration of his creatures.

Q. Whence do we derive our knowledge of the duty and homage we owe to God?

A. We obtain our knowledge of the duty and homage we owe to God, from the dictates of reason and the light of nature, but especially from the sacred Scriptures.

Q. Who is the Author of the Scriptures?

A. God himself is the Author of the Scriptures;—he spake them by the mouths of his holy and inspired prophets and apostles.

Q. Are there not several varieties of Religion prevalent in the world?

A. There are numerous Religious Sects in the world; but the Jewish, Christian, Mahometan, and Pagan, are the four principal ones.

It is calculated that, of the human family, about

9,000,000 are Jews,
170,000,000 Christians,
140,000,000 Mahometans,
480,000,000 Pagans.

Total, ... 800,000,000—

and that of the one hundred and seventy millions of Christians, about

50 millions are Protestants,
30 millions, Greeks and Armenians, and
90 millions, Roman Catholics.

Q. How is the Jewish Religion founded?

A. The Jewish Religion is founded upon the law given by Moses to the Israelites, as contained in the *Old Testament*.

Q. Who was the author of the Christian Religion?

A. The author of the Christian Religion, was Jesus Christ, the Son of God; who left the

bosom of the Father, to dwell in flesh and blood here on earth: where, after performing many miracles, and works of beneficence, he was crucified and buried; but, the third day, he rose from the dead; and shortly after ascended to the Father.

Q. What is the Pagan Religion?

A. The Pagan Religion is the idolatrous rites performed by the Pagans, or heathen nations; who worship and adore false gods, or give those honours to creatures, and the works of man's hand, which are due only to God.

Q. When, and by whom, was the Mahometan Religion founded?

A. The Mahometan Religion was founded in the seventh century, by the impostor Mahomet; whose whole doctrine is a ridiculous compound of Paganism, Judaism, and Christian heresies.

Q. What are the advantages derived to society from true Religion?

A. The advantages derived from true Religion are many—it inspires sincerity in all men, justice in princes, integrity in magistrates, obedience to the laws, honesty in trade, union in families, and, above all, and what is better than all, it secures, to those who possess it, everlasting happiness in the world to come.

PHILOSOPHY.

Q. What is Philosophy?

A. Philosophy, properly speaking, is the

Science of Wisdom; or, it is the employment of the human mind in examining and explaining the nature, modifications and effects of *matter*, the principles of *morality*, the operations of *reason*, and the properties of *abstract or immaterial things*. This last, is called *metaphysics*.

Q. From what is the term Philosophy derived?

A. The term Philosophy is derived from the Greek words *philos*, to love, and *sophia*, wisdom.

Q. How may Philosophy be divided?

A. Philosophy may be divided into Physics, or natural philosophy; Ethics, or moral philosophy; Logic, and Metaphysics.

PHYSICS.

Q. Of what do Physics treat?

A. Physics, or Natural Philosophy, treat of the nature or modifications of matter, and explain the various phenomena of the material world.

Physics are also called *physiology*.

Q. What is Matter?

A. Matter is the general name of every thing or substance that has *length*, *breadth*, and *thickness*.

Q. What are the properties of Matter?

A. The inherent properties of Matter, are *solidity*, *divisibility*, *mobility*, and *inertness*.

The *solidity* of a body prevents any other substance from occupying the same place at the same time.

Divisibility is that property of a body by which its parts may be separated.

Mobility, a capability of being moved.

Inertness, without a disposition to move.

To matter also belong the forces of attraction, repulsion, and gravity.

Attraction in bodies is their tendency to approach each other.

Repulsion, a tendency to repel, or separate from each other; and

Gravity, the tendency of all bodies towards the centre of the earth.

Q. What is Motion?

A. Motion implies a continued and successive change of place; and without it nothing can be produced or destroyed.

To motion belongs the *force* that produces it—the *quantity* of matter moving—the *velocity* and *direction*—the *space*—the *time*—and the *momentum*.

Q. What is the Centre of Gravity?

A. The Centre of Gravity, in any body, is that point about which all its parts do exactly balance each other.

MECHANICS.

Q. What are Mechanics?

A. Mechanics are a science which considers

motion and moving bodies, their nature and laws, with the effect of mechanic powers and their various combinations, in the construction of machines or engines.

That part of mechanics which considers the motions of bodies, arising from weight or gravity, is generally called *statics*.

Q. What is meant by Mechanic powers?

A By Mechanic powers are meant those machines which are used for raising greater weights, or overcoming greater resistances, than could be effected by natural strength, without them: the power, or strength, being applied to one part of the machine; and the weight, or resistance, to another.

Q. How many Mechanic powers are there?

There are six Mechanic powers: the lever, the wheel and axle, the pulley, the inclined plane, the wedge, and the screw.

Q. Please to describe each.

A. The *lever* is an inflexible bar, turning on a supporting prop, as its centre of motion. There are three kinds of levers:

1. When the prop is between the weight and the power; as, iron-crows, pincers, and scissors.

2. When the weight, or resistance, is between the prop and the power; as, the oars of a boat, and knives which are fixed at the point.

3. When the power is between the weight and the prop; of which sort, are, the bones of a man's arm, and the wheels of clocks and watches.

The *wheel and axle* are contrived chiefly for

the raising of weights to a considerable height; the power being applied to the rim of the wheel, and the weight drawn up by a rope winding round the axle.

The *pulley* is a little wheel or rundle, having a channel round it, and turning on an axis, with a rope which rests in its channel, and has the power applied at one end, and the weight at the other. An assemblage of these is called a system of pulleys; some of which are in a block, that is fixed; and others in a block, which is moveable, and rises with the weight.

An *inclined plane* is like the chamfered part of an edgetool, which is ground down only on one side, to the edge.

A *wedge*, in the common form, is like two inclined planes, joined together at their bases.

The *screw* may be considered as an inclined plane, wrapped round a cylinder, which is turned by a winch or lever. It is of great efficacy in raising weights, or in pressing bodies closely together.

Of these six simple machines, all the most compound engines in the world consist. As the screw includes the inclined plane, and two inclined planes make the wedge, we have all the mechanical powers combined in the common *jack*, if it be aided by a fly-wheel; for, then we have also the lever, the wheel and axle, and the pulleys.

HYDROSTATICS.

Q. What are Hydrostatics?

A. Hydrostatics is that science which treats of the weight and action of fluids.

A fluid is a body whose parts are easily moved among themselves, and readily yield to any impression.

Fluids are either non-elastic and incompressible; as water, wine, oil, mercury; or elastic, and compressible; as air, gas, &c.

Q. What is meant by Specific Gravities?

A. By Specific Gravities we mean the relative weight which equal bulks of different bodies, have to each other. It is by weighing them in water, and thus comparing their weight with that of water, that the specific gravities are found.

Q. What do Hydraulics teach?

A. Hydraulics teach us how to estimate the swiftness and force of fluids in motion. All water works, mills, pumps, &c. come under the notice of hydraulics.

Q. What is Acoustics?

A. Acoustics is the doctrine of sounds. All sonorous bodies, whilst sounding, are in a state of vibration, and communicate similar vibrations to the surrounding air, which thus convey sound. [See music.]

PNEUMATICS.

Q. Of what do Pneumatics treat?

A. The science of Pneumatics treats of the

mechanical properties of elastic or aerial fluids; such as their weight, density, compressibility, and elasticity.

Q. What are the properties of Air?

A. Air is a transparent, invisible, elastic, and compressible fluid, about 900 times lighter than water, and capable of almost indefinite expansion.* It is essential to animal life and the growth of plants.

Q. What is to be understood by the Atmosphere?

A. The Atmosphere is all that mass of air which encompasses the earth to the height of many miles, moves along with it in its annual and diurnal motions, in which the clouds and vapour float, which is the medium of sound, and which we constantly breathe.

Q. Of what is pure Atmospheric Air composed?

A. Pure Atmospheric Air is composed of three gaseous substances: viz.

Of oxygen gas, . . .	22 parts,	Making together,
Of nitrogen gas, . .	77 parts,	
Of carbonic acid gas,	1 part,	
	100 parts, or pure air.	

Q. What is Oxygen?

* Mr. Boyle found by experiment, that air, by its elasticity, would so expand itself as to occupy 13,769 times more space than contained it before. And we know that air may be compressed to 128th part of the space it naturally occupies. Its expansion and compressibility may, however, be considered as almost infinite.

A. Oxygen is the principle of combustion, and the vehicle of heat; and is absolutely necessary for the support of animal life.

Q. What is Nitrogen?

A. Nitrogen is chiefly distinguished by its being incapable of supporting combustion, or animal life. It has the effect of neutralizing, in some measure, the properties of oxygen; thus, rendering it fit for breathing and promoting combustion; and is highly favourable to vegetation.

Q. How is Carbonic Acid Gas produced?

A. Carbonic Acid Gas is produced by the respiration of animals, and by combustion. It is the proper nutriment of vegetables; which nature has endowed with organs for its decomposition.

One gallon of common air is sufficient for a man during the space of one minute, and no longer: a lighted candle, also, destroys the vivifying quality of a gallon of air in one minute, and without a fresh supply it will cease to burn.

Q. Of what gravity is the Atmosphere, and what are its principal effects?

A. A quart of Atmospheric air, at the earth's surface, weighs sixteen grains; being 900 times lighter than rain water: but, from its great height, it presses upon the earth, and all the bodies thereon, so powerfully, as to bind them down with a force amounting to upwards of fifteen pounds weight upon every square inch: hence, it prevents the vessels of animals and plants from being too much distended by the impetus of the circulating blood and juices.

Q. Is the Atmosphere of the same density and heat, at all distances from the earth?

A. No: the air is lighter, in geometrical proportion, the higher we ascend; and its heat also decreases, but not in a similar ratio.

By this loss in gravity, and the consequent sinking of the mercury in the barometer, the altitude of mountains is ascertained.

Q. How many Elements does Nature embosom?

A. Formerly we said Nature embosomed *four* elements; *earth*, *water*, *air*, and *fire;* but, as each of these, except *fire*, or caloric, is a compound body, the elements, or radicals, amount to nearly fifty.

OF METEORS.

Q. What is a Meteor?

A. A Meteor is a transient body, or the resemblance of a body, formed in the atmosphere, and exhibiting various appearances.

A. How are Meteors divided?

Q. Meteors are divided into three kinds: the igneous, aerial, and aqueous. Of the igneous kind, are lightning, aurora borealis, ignus fatuus, and other fiery phenomena. The aerial consists of winds. The aqueous are composed of vapours, or watery particles, variously separated, and condensed by cold: such are, clouds, hail, and snow; rain, waterspouts, dew, and the like.

ELECTRICITY.

Q. What is Electricity?

A. Electricity, or the electric fluid, is an exceedingly subtile fire which pervades all nature, and produces most singular and extraordinary phenomena.

It is the cause of *thunder and lightning*, of the *aurora borealis*, and, in many instances, of *earthquakes*.

The *science* of *electricity* is the art of moving and accumulating this astonishing agent, so as to exhibit its various effects.

All those bodies which readily transmit this electric fluid, are called *conductors;* and those that do not, *non-conductors*, or *electrics*. All the metals, semi-metals, metallic ores, charcoal, water, and most fluids, are conductors of electricity.

Q. How does it appear that thunder and lightning are the effects of electricity?

A. Dr. Franklin has proved, by a variety of experiments, that the lightning of electricity, and that which flashes in the clouds during a thunder storm, are of exactly the same kind, and operate in the same manner.

OF LIGHTNING AND THUNDER.

Q. What is Lightning?

A. Lightning is a large, bright flame, darting

swiftly through the air; of momentary duration, and commonly attended with thunder.

Q. How is this Meteor accounted for?

A. Lightning, in the present advanced state of electricity, is universally allowed to be an electrical phenomenon: for, as before observed, it has been proved by a variety of experiments, that the lightning of electricity, and the lightning which glares in the clouds, are precisely the same, both in kind and operation.

Q. What is the cause of Lightning?

A. Lightning is caused by a discharge of the superabundant electricity of one cloud into another, or into some part of the earth which is negatively electrified.

According to the theory of Franklin, when the air in one place, is electrified positively,* and in another negatively, it causes particular clouds and different parts of the earth, to possess opposite electricities; so that on their approach within a certain distance, a discharge is made from the one into the other; and in the discharge, a flash of lightning is observed.

Q. How is Thunder produced?

A. Thunder is produced by a concussion in the air, from an electrical explosion; and the rattling noise we hear, is probably the effect of the sound, carried rapidly by the agitated air among the clouds, which hang irregularly around, one above another.

* When any body possesses more than its *natural share* of the electric fluid, it is said to be *positively electrified;* and when *less*, *negatively.*

Q. What is the reason that thunder is not heard till some time after the lightning is seen?

A. The reason that thunder is not heard till some time after the lightning is seen, is, that sound is much longer in arriving at our ears, than light is at our eyes: for, light moves almost instantaneously; but sound moves only at the rate of 1142 feet in a second.

Q. I have heard of thunderbolts, and of their strange effects: pray, what are they?

A. What is vulgarly called a thunderbolt, is only lightning when it acts with extraordinary violence, and breaks or shatters whatever lies in its way. When the explosion is high in the air, it will do no mischief; but, when near the earth, it may kill animals, destroy trees, burn houses, &c.

Q. How can we ascertain its distance?

A. The distance of Lightning may be estimated by the interval of time between the flash and the noise. The ordinary difference between the two is about seven seconds, which, at the rate of 1142 feet in a second, gives the distance of about a mile and a half; but it sometimes comes in a second or two; which shows that the explosion is very near us, or even among us.

OF THE AURORA BOREALIS.

Q. What is the Aurora Borealis?

A. The Aurora Borealis is an extraordinary,

luminous meteor, showing itself in the night after a dry season, chiefly in the northern parts of the atmosphere; and, hence, the vulgar give it the name of *northern lights*, or *streamers*.

Q. Pray, describe this meteor?

A. The Aurora Borealis appears most commonly in the form of an arch; partly bright, and partly dark; but always transparent, and usually of a red colour, inclining to yellow. It sends out frequent coruscations of pale light, which seem to rise from the horizon in a pyramidical and undulating form, and shoot with great velocity toward the zenith, or that point which is immediately over the head of the spectator.

Q. How is it accounted for?

A. The Aurora Borealis is deemed an electrical phenomenon, and supposed to be occasioned by the flashing of electric fire, from positive towards negative parts of the atmosphere, at a great distance, and in the upper region, where the resistance is least; and that it appears chiefly in the northern parts, because the alteration in the heat of the air is there the greatest.

OF THE IGNUS FATUUS.

Q. What is the Ignus Fatuus?

A. The Ignus Fatuus is a common ignited meteor; chiefly seen at night, in meadows, marshes, and other moist places. It is known among the vulgar by the appellations, *Will-with-a-wisp*, and *Jack-with-a-lantern*.

Q. How is this phenomenon explained?

A. The Ignus Fatuus is ascribed, by late discoveries, to inflammable air, arising from the putrefaction and decomposition of vegetable substances in water, and taking fire by means of the electrical matter contained in fogs. In short, positive and negative electricity in the air, with a proper quantity of moisture to serve as a conductor, will readily account for these, as well as for *falling stars*, so called, and other fiery phenomena.

OF WIND.

Q. What is Wind?

A. Wind is air put into motion, more or less rapid, by which it flows in currents from one region to another.

Q. What are the principal causes of this motion or agitation?

A. The principal causes of the motion or agitation of the air, are local alterations in the state of the air, by means of heat. For, when the air is heated over one part of the earth more than over another, the warmer or rarefied air becomes specifically lighter than the rest, and is therefore overpoised by it, and raised upwards; the higher parts of it diffusing themselves every way over the top of the atmosphere; while the neighbouring air below, rushes in on all sides, till the equilibrium is restored.

Hence, we may account also for the ascending

of smoke in a chimney; and for the rushing of the air, through the keyhole of a door, or any small chink, into a room where there is a fire.

Q. How are the Winds divided?

A. The Winds are divided into four principal ones; the east, west, north, and south; which take their names from the four cardinal points of the world.

Q. What is the nature of each?

A. The *east wind* is damp; because it comes from the bosom of the Atlantic, where it imbibes large quantities of vapour;—the *west*, coming from temperate regions across the American continent, is pleasant, pure, and exhilarating;—the *north wind* is cold, because it comes from the frigid zone, or countries remote from the influence of the sun;—and the *south*, coming from the torrid zone, is warm.

Q. Why are the Winds deemed beneficial?

A. The Winds are deemed beneficial, not only on account of their use in moving various machines, and immense importance in navigation, but because they serve to purify and refresh the atmosphere, to convey the heat or cold of one region to another, and to produce a circulation of vapours from the ocean to inland countries. But, though their effects, on the whole, may be of great benefit, their violence is sometimes very detrimental.

Q. What is a Whirlwind?

A. A Whirlwind is a violent and impetuous rushing in of the air from all points, in a circu-

lar or *whirling manner*, so as to threaten destruction to all around. It is produced by some great and very sudden change in a particular part of the atmosphere by means of a cloud, or some electrical cause.

When these causes are numerous and very violent, accompanied with lightning and thunder, the wind becomes so furious and terrible, that it overthrows houses, roots up trees, and destroys every thing in its course. This is denominated a *Hurricane*.

Q. What is the ordinary velocity of Wind?

A. The velocity of Wind, in what is termed a gentle breeze, may be from four to six or eight miles an hour; a strong breeze or brisk Wind will travel perhaps from ten to fifteen miles an hour; and a Hurricane or Tempest, probably not less than fifty or sixty miles.

The Air is often observed, in different regions, to move in contrary currents; and this, almost always, previous to thunder.

Q. What are Clouds?

A. Clouds are a quantity of condensed vapours, suspended in the atmosphere.

Q. How are they formed?

A. Clouds are formed from a collection of watery particles, raised from the earth by solar and subterraneous heat. The particles, at their first rise, are too minute and separate to be perceived; but meeting in their ascent, with a greater degree of cold, they are condensed, and their parts united, so as to reflect light, and become visible.

Q. At what height do you suppose the Clouds to be suspended?

A. The Clouds are suspended from about a quarter of a mile to two miles in height, according to their specific gravity, and to the elasticity or density of the atmosphere. They are frequently visible below the tops of very high hills.

Q. May we then be sometimes *above* the Clouds?

A. Yes, considerably: in mountainous countries, it is no unusual thing to see the clouds pouring down in rain upon the vallies below, while a clear sunshine is enjoyed around you upon the mountains.

Q. What is the cause of the various forms and colours of the Clouds?

A. The various *forms* of the Clouds arise from their loose texture, which allows them to change into any form, according to the different currents of the air: and their *colour* is owing to their particular situation with regard to the sun, and the different reflections of his light.

It appears from the observable motion of the Clouds, that there are different currents in the air, at the same time, and in the same quarter, one under the other.

OF THE RAINBOW.

Q. What is a Rainbow?

A. A Rainbow is a meteor in the form of an

arch, exhibited in a rainy atmosphere, opposite to the sun.

Q. Of what colours does it consist?

A. The colours of the Rainbow are, beginning from the upper part, red, orange, yellow, green, blue, indigo, and violet; which are called the seven *primary colours:* for all other colours, are composed of some of them.

Every ray of light is a compound body; consisting of these seven colours; but mixed in such proportions, as to produce the appearance of white. As these colours possess different degrees of frangibility, they are easily separated. Let a ray of light pass through a drop of water, and the violet will suffer a greater refraction than the red; consequently, they will be separated.

Q. How is the Rainbow formed?

A. The Rainbow is formed by the rays of the sun being refracted in the drops of falling rain, and thence reflected to the eye of the spectator, who is between the sun and the rain.

Q. How are the various colours produced?

A. The various colours of the Rainbow are produced by the different refractions of the rays, transmitted to the eye from several drops; one higher than another; the rays least refracted producing red; those most refracted, violet; and the intermediate ones, the other colours, in the order before mentioned.

Q. I have sometimes observed two bows, one above the other; how are these accounted for?

A. When two Rainbows are formed, the interior and stronger one is produced by one reflection; the exterior and fainter, by two: when the latter is visible, its colours lie in a contrary order to the other.

Q. What part of the whole spectrum, or bow, does each of these colours occupy?

A. If it be divided into 360 parts, the *red* will occupy 45; the *orange* 27; the *yellow* 48; the *green* 60; the *blue* 60; the *indigo* 40; and the *violet* 80 parts.

Q. How is the *lunar* Rainbow formed?

A. The lunar Rainbow is formed in exactly the same manner as the other; by the beams of the moon falling upon the bosom of a shower.

Q. How is that lucid ring, called the *halo*, which we sometimes see diffused around the moon, accounted for?

A. As the *halo* always appears in *rainy* or *frosty* weather, we may suppose it occasioned by the refraction of light, in the watery, or frozen particles of the atmosphere.

OF HAIL.

Q. What is Hail?

A. Hail is an aqueous concretion, generally round, but sometimes angular, triangular, &c. according to the suddenness of its first formation, and the degrees of cold through which it passes in its descent.

Q. How is it produced?

A. Hail is produced thus: *Particles* of *water* being brought together by the agency of the electric fluid, in the upper regions of the air, form *drops;* and these, in their descent through a cold atmosphere, are congealed, and form *hail-stones* of greater or less size and density, according to the intenseness of the cold, the quantum of water first congealed, and the number of other particles which adhere during their descent.

OF SNOW.

Q. How is Snow produced?

A. Snow is formed in the middle region of the atmosphere, by particles of water there congealed, and to which, similar particles unite and still accumulate as they descend through a cold air, till they fall to the earth in what we term flakes of Snow.

Q. Why are those flakes so light?

A. The lightness of these flakes of snow, is owing to the extent of the surface, in comparison with the matter contained under it; as gold itself may be extended in surface till it will float upon the least breath of air.

Q. What is the cause of their whiteness?

A. The particles of ice that compose flakes of Snow, being solid, transparent, and differently arranged, reflect the light from every part; and thus produce their *whiteness.*

Q. Of what benefit is Snow to the earth?

A. Snow furnishes a covering for corn and other vegetables, by which they are guarded from the intense cold of the air; especially, from piercing winds and hard frosts: It also prevents the internal heat of the earth from escaping; and, when melting, it moistens and pulverizes the soil, and thereby promotes vegetation.

OF RAIN.

Q. What is Rain?

A. Rain is a precipitated cloud, descending in the form of drops of water; or, it is snow dissolved in passing through the lower and warmer region of the atmosphere. Rain, therefore, has its origin in regions below those of snow and hail.

Q. How do you account for the various sizes of drops of Rain?

A. The various sizes of rain-drops, may be accounted for as follows: On mountains, drops of Rain, as well as flakes of snow and hailstones, are very small; but the more intense the electricity is that forms them, the larger they are. Their bulk is also increased from the length of their descent through a humid atmosphere, in which they attract particles of vapour as they fall: for, it is known, that a vessel placed on the top of a high tower, will not collect so much rain as another of the same dimensions, set on the ground.

Q. What are the chief uses of Rain?

A. Rain moistens and softens the earth, and thus fits it for affording nourishment to plants. By falling on mountains, it carries down with it many particles of loose earth, which serve to fertilize the surrounding valleys: it purifies the air from noxious exhalations, which tend, in their return to the earth, to meliorate the soil: it also moderates the heat of the air; and is one means of supplying fountains and rivers.

Q. Was there any Rain before the flood?

A. It is supposed there was no Rain before the flood, but that the earth was moistened by plentiful dews or mists: of course, there could have been then no rainbow. This meteor is recorded in the bible as appearing, for the first time, after that great occurrence.

OF FOG AND DEW.

Q. What is Fog?

A. Fog or mist, is a meteor, consisting of gross vapours, floating near the surface of the earth.

Q. How is it formed?

A. Fog is formed by vapours raised from the earth, which meet, at their first entrance into the atmosphere, with cold sufficient to condense them considerably; and thus arrest their ascent. They therefore either remain suspended for a time, or return back in a light drizzling rain.

Fogs are only low clouds, or clouds in the lowest region of the air; and clouds are nothing more than Fogs raised on high.

Q. How is Dew formed?

A. Dew is formed from extremely light and subtile vapours, which, as they ascend from the earth, become condensed by the coldness of the night, before they have arisen to any considerable height, and return back in imperceptible drops

OF WATERSPOUTS.

Q. What is a Waterspout?

A. A Waterspout is a large column of water, rising in a spiral form from the agitated ocean, with a frightful rushing noise, to a vast height in the air.

Q. What is the cause of this phenomenon?

A. Dr. Franklin ascribes Waterspouts to the same cause which produces whirlwinds; namely, the rarefaction of the air; and this hypothesis is strengthened by the fact that Waterspouts seldom appear except in warm climates.

Q. Do Waterspouts often occur?

A. In the vicinity of the equator, Waterspouts are very frequent; and would often endanger or destroy ships, were not means found to reduce them before their very near approach.

Q. How may this be done?

A. A Waterspout is easily reduced by the discharge of a cannon. By this the pressure of the

surrounding air is decreased both through rarefaction and expansion; and the Waterspout returns upon the ocean, in the form of a heavy rain, or torrent.

OF THE TIDES.

Q. What is meant by the Tides?

A. Tides are two periodical motions of the waters of the sea; called the flux and reflux, or the *flow* and *ebb*.

Q. Please to explain these motions?

A. The sea is observed to flow from the equator towards the north and the south pole, for about six hours; in which motion, or flux, the sea gradually swells; so that, entering the mouths of rivers, it drives back the river waters towards their source. After this flux has continued for six hours, the sea seems to rest for about twelve minutes; and in this state it is called *high water*. When this pause is over, the ebb commences, and the sea retires from the poles towards the equator, for six hours more; in which time, the water sinking, the rivers resume their course towards the sea. After this reflux, the sea again rests another twelve minutes; and in this state, it is called *low water*.

Q. How are these phenomena accounted for?

A. Tides are occasioned by the attraction of the moon, which extends to the earth in so powerful a manner, as to draw up the waters of the ocean in a heap, immediately beneath the moon.

At the same time, the waters on the opposite side of the earth, being feebly attracted, the neighbouring waters, pressing towards that place, swell into a heap, pointing to the opposite part of the heaven, and causing the Tides to rise at the respective antipodes at the same time. Thus, does the moon, in going once round the earth in twenty-four hours and three quarters, produce two tides or swells, and as many ebbs.

Q. What are the causes of the Tide rising much higher at one time than at another?

A. The causes of the Tide's rising higher at one time than at another, are, that about the time of the new and full moon, the action of both the sun and moon are united, and draw in the same straight line, by which means the waters are most elevated at these times, and are called *spring tides;* and this elevation is farther increased the nearer these two luminaries are to the equator: consequently, the highest spring Tides are in March and September.

The lowest Tides are about the first and third quarter of the moon, and are called *neap tides:* for, at these times, the sun and moon act contrariwise; the sun raising the waters at the point where the moon causes them to be lowest: so that these Tides are occasioned only by the difference by which the attraction of the moon, which is nearest to the earth, prevails over that of the sun.

Q. Whence proceed their other irregular motions?

A. The other irregular motions of the Tides

are caused principally by a multitude of islands and continents, which interrupt the course of the waters, and produce a variety of appearances in different places. Were it not for these, as the tides are caused *principally* by the moon, and consequently follow her apparent course from east to west, and her declination from north to south, except the irregularities already mentioned, all the motions of the waters would be uniform.

OF EARTHQUAKES.

Q. What is an Earthquake?

A. An Earthquake is a tremendous agitation of some considerable part of the earth, attended with a noise like thunder; and frequently with an eruption of wind or smoke, water or fire. It is, undoubtedly, the greatest and most formidable phenomenon of nature.

Q. What is the cause of these terrible phenomena?

A. Earthquakes of a superficial kind, may have an electric origin: for, when a part of the earth is in a highly electrified state, the approach of a non-electric cloud, will produce a sudden discharge, and occasion a violent commotion in the earth, many miles in compass. But the principal agent of those that are interior and more tremendous, is subterraneous fire.

Q. Please to explain those of subterraneous origin?

A. The earth abounds with subterraneous caverns, canals, and veins; some full of exhalations, others, full of water; and some parts replete with nitre, sulphur, bitumen, &c. which produce fire: hence, it is easy to conceive the terrible effects which may be occasioned from such confined air, or water, when acted upon, and greatly rarefied by fire; especially, if it be considered, that the expansive force of steam is twenty-eight times greater than that of gunpowder.

OF VOLCANOES.

Q. What are Volcanoes?

A. Volcanoes are burning mountains, which emit flame, ashes, cinders, stones, liquid sulphur, and other substances.

Q. Are there many of them?

A. Yes, Volcanoes are found in all quarters of the globe; but the principal of those in Europe, are Etna, or Gibel, in Sicily; Vesuvius, in Naples; and Hecla, in Iceland. It is owing to those vents of subterraneous fires, that the effects of earthquakes are not more frequent and dreadful.

MINERALOGY.

Q. Of what does Mineralogy treat?

A. Mineralogy treats of all fossil bodies; as, gold, silver, iron, tin, lead, and coal; besides the

various kinds of stone: as, marble, diamonds, the loadstone, &c.

Q. Give a short description of the principal metals.

1. A. *Gold* is the purest, most ductile, and the heaviest of all metals, except platina. It is found in mines, in various parts of the world; but abounds most in the mines of Peru and Chili, in South America.

2. *Silver* is a white metal; heavy, sonorous, brilliant, and very ductile. It is found in the greatest abundance in South America.

3. *Copper* is of a red colour; very sonorous and elastic, and the most ductile of all the metals, except gold. It is found in various parts of the world; but particularly in Sweden.*

4. *Iron* is universally and largely diffused throughout nature; pervading almost every thing. It is the chief cause of colour in earths and stones, and exists in almost all vegetables and animal fluids.

Iron, though the cheapest, is by far the most useful of all the metals.

When placed, for some time, in contact with red-hot charcoal, it becomes much harder and more elastic, and is then called steel; and when suspended perpendicularly for a considerable period, or acted upon by intense friction, it acquires the properties of a magnet.

5. *Lead* is very heavy, of a livid white

* A mixture of copper and tin forms *bronze:* two parts of copper and one of zinc, form *brass:* other proportions make *prince's metal.*

colour, and the softest of all metals. It is extensively used in making paints; and produces grey, white, red, or brown, according to the quantity of oxygen with which it is brought in contact. It is found in the greatest abundance in England.

6. *Tin* is a white fusible metal, neither so hard as silver, nor so soft as lead. The Tin mines in Cornwall and Devonshire (England) furnish the greatest part of all the tin consumed in Europe.

Six pounds of brass, with fifteen pounds of lead, and a hundred pounds of iron, make the composition called *pewter*.

7. *Mercury* or *Quicksilver* is a fluid matter, resembling melted silver.

In the temperature of our atmosphere, it is neither ductile nor malleable. It is the heaviest of all metals, gold and platina excepted; is in a high degree volatile, and extremely fluid; easily adheres to gold, less readily to silver, with difficulty to copper, but to iron not at all.

Q. What of the diamond, and other precious stones?

A. The *diamond*, called by the ancients, *adamant*, is the most valuable of all the precious stones. Its goodness consists in its water or colour, lustre and weight. It is found chiefly in the mines of Golconda, in Hindoostan; is the hardest of all gems, and can be cut only by itself. "*Diamond cut Diamond.*"

The *ruby* is next to the diamond in value, and is of a crimson colour, inclining to purple.

The *garnet* is very like the ruby, and perhaps is of the same species.

The *hyacinth* is sometimes of a deep red, and sometimes of a yellow colour.

The *emerald* is a grass green.

The *beryl*, a sea, or bluish green.

The *sapphire*, a sky blue.

The *topaz* or *chrysolite* is of a gold colour.

All these are transparent: but the *cornelian*, which is of a pale red or orange colour; the *onyx*, of a greyish cast; the *turquoise*, between a blue and a green; and the *lapis lazuli*, which is studded with spots of gold on an azure ground; are opaque, or only half transparent.

Q. What do you know of the magnet or loadstone?

A. The magnet or loadstone is found in iron mines in several parts of the world: as, China, Arabia, Bengal, Hungary, Germany, and England; and resembles the ore of iron in appearance, but is closer and more ponderous.

Q. What are its properties?

A. The magnet or loadstone powerfully attracts iron, to which it also communicates the same attractive power; and every magnet, however small or divided, has two poles, one of which points to the north, and the other to the south. The discovery of the virtues of this stone is of the highest importance to navigation and commerce.

ARCHITECTURE.

Q. What is Architecture?

A. Architecture is the art of building or erecting edifices: it is of three kinds; Civil, Military, and Naval. Its excellence consists in giving to the materials employed, such form and disposition as to produce beauty, strength, and convenience.

Q. In what does Civil Architecture consist?

A. Civil Architecture consists in designing and building edifices for the uses of civil life; as, dwelling houses, churches, and colleges. These are constructed agreeably to one of the five orders of this art.

Q What are these five orders of Civil Architecture?

A. The five orders of Civil Architecture are the Doric, Ionic, Corinthian, Tuscan, and Composite. These have their names from the persons or people who invented them; except the last, which was invented by the Romans, and is a compound of the Doric, Ionic, and Corinthian.

Besides those five orders, the *Gothic*, a fanciful, yet sublime style of building, is still used in the construction of churches and other public buildings, not only in Europe and Asia, but in America also.

Q. What is Military Architecture?

A. Military Architecture is the art of strengthening and fortifying towns, or other places; so as to shield them from the assaults of enemies, and the violence of arms, by the erection of forts,

castles, and other fortresses, with ramparts, bastions, &c. This art is more usually termed Fortification.

Q. What is Naval Architecture?

A. Naval Architecture is the art of constructing ships, galleys, and other floating vessels; whether for the service of war or commerce. The construction of moles, ports, docks, &c. belongs to this art.

Q. What are the acquirements necessary for a good architect?

A. The acquirements necessary for a good architect, are an acquaintance with drawing, geometry, optics, and history.

PAINTING.

Q. What is Painting?

A. Painting is the art of representing objects, by lines and degrees of colours, on an even and uniform surface.

Q. How is this art divided?

A. Painting is divided into six parts: the design, the proportion, the expression, the clare-obscure, the ordonnance, and the colouring.

Design is the simple contour, or outlines, of the figures or things intended to be represented; or the lines that terminate or circumscribe them.

Proportion is the just magnitude of the several members of a figure, a group, &c.; with regard to one another, to the whole figure, the group, and the entire piece.

The *Expression* of a piece of painting, is the appearance which it has to the eye; or, the degree of power which the artist gives it, of conveying to the beholder, a correct idea of the object or objects it represents. It ought to be natural, lively, and striking.

Clare-obscure is the art of distributing the lights and shades of a piece; both with regard to easing the eye, and heightening the effect of the whole composition.

Ordonnance denotes the disposition of the parts of a picture; either with regard to the whole piece, or to the several parts.

Colouring is the manner of applying and conducting the colours of a picture; or the mixture of lights and shades, formed by the various colours employed in Painting.

Q. What are the various kinds of Painting?

A. Paintings are distinguished with regard to the materials used; the matter whereon they are applied; and the manner of applying them. The principal kinds are as follow:

Oil-painting, for which the colours are ground in nut or linseed oil; and may be applied to canvass, wood, or walls; stone, glass, or metals.

This discovery, which was made by a Flemish painter, in the beginning of the 14th century, is of great importance to the art; since, by it, the colours of a picture are preserved much longer, and receive a softness and lustre, which the ancients, to whom it was unknown, could never give their pieces, whatever var nish they might use.

Water colours, or *limning*, is a more an-

cient art than painting in oil, in which the colours are mixed with water only; with, sometimes, the addition of a little sizing.

Fresco is a kind of painting done with water colours, on fresh plaster, or on a wall laid with mortar not yet dry; so that, incorporating with the mortar, and drying along with it, the colours become extremely durable.

Distemper is a term for painting, when the colours are mixed with size, whites of eggs, or other proper glutinous, or unctuous substances, without oil.

Miniature is a delicate kind of painting; consisting of fine points, or dots, instead of lines, and done with thin water colours.

Encaustic is a species of Painting with burned wax. It consists in applying water colours upon a coating of beeswax; and when the picture is dry, it is put near a fire, by which the wax melts, and absorbs all the colours.

Enamel is a method of Painting with enamels, or metalline colours, ground and reduced to powder, and used, like other colours, with a pencil; then fused, baked again, and vitrified by force of fire.

Glass is a kind of Painting similar to enamel; the colours being incorporated with the glass itself, by exposing them to a proper degree of heat.

Aquatinta is a method of *etching*, on copper, lately invented; by which, a soft and beautiful effect is produced, resembling a fine drawing in water colours, or Indian ink.

Mezzotinto is an ingenious method of representing figures, on copper; so as to form prints in imitation of Painting in Indian ink.

SCULPTURE.

Q. What is Sculpture?

A. Sculpture is the art of cutting or carving wood and stone into images; and of fashioning wax, earth, plaster, &c. to serve as models, or moulds for the casting of metalline figures.

Q. Is not this a very ancient art?

A. Of the antiquity of Sculpture there can be no doubt; since the sacred writings mention it in several places: as, in the case of Laban's idols, taken away by Rachel; the brazen serpent, made by Moses, and the golden calf, by the people of Israel.

Q. What is Statuary?

A. Statuary is a branch of Sculpture, employed in making statues. The ancients far surpassed the moderns in this art; perhaps, because it was more popular, and therefore, more cultivated.

Q. What are deemed the best specimens of Sculpture in England?

A. The specimens of Sculpture that seem to stand highest in England, are—the statues of Phrensy and Melancholy, on the piers, before Bethlehem hospital;—an elegant statue of Edward VI. in bronze, at St. Thomas's hospital, in Southwark, by Sckeemaker;—another of Sir Isaac Newton, at Cambridge, by Roubiliac;—the

monuments of the duke of Argyle and Mrs. Nightingale, by the same artist;—and one of Dr. Chamberlain, by Sckeemaker.

Westminster-abbey is the famous repository of Sculpture in England; but the figures lose much of their effect by being crowded together without order or arrangement.

Q. Is it not probable, that Sculpture is more ancient than Painting?

A. There is reason to believe that Sculpture is not only more ancient than Painting, but that it stood higher in the public esteem also; since the ancient painters appear to have imitated the statuaries; and their works have not that freedom of style, especially with respect to their drapery, which the pencil might easily have acquired, to a greater degree than the chisel.

Q. What is Bass-relievo?

A. Bass-relievo is a term in Sculpture, signifying that the figures or images do not stand entirely above the plane on which they are formed.

Creux is opposed to relievo; and implies that the figure, cut and formed, lies within the plane of the plate or substance engraved on.

A *Bust* is the portrait of a person, in relievo; showing only the head, shoulders, and breast.

Q. Which is the more difficult of these two arts, Painting or Sculpture?

A. Painting has a greater number of requisites than Sculpture; but, at the same time, its expedients are the more numerous; and, therefore, we may venture to affirm, that, whenever

Sculpture pleases equally with a Painting, the Sculptor is certainly the greater artist.

ETHICS.

Q. What are Ethics?

A. Ethics, or Moral Philosophy, is the science of morals, or of manners and duty, in all our intercourse with our fellow men; whether in public or private life.

Q. What is the design of this science?

A. The design of Ethics or moral philosophy, is to teach men their duty, and the reason of it;—to teach them virtue,* benevolence, prudence, fortitude, and temperance; moral obligation, and relative duty.

*Virtue, says Paley, comprehends benevolence, prudence, fortitude, and temperance; and is the doing of good to mankind, in obedience to the will of God, and for the sake of his favour, and of everlasting happiness.

Here—the good of mankind is the object; the will of God, the rule; and his favour, with everlasting happiness, the end or motive of virtue.

Benevolence proposes good ends; *prudence* suggests the best means of attaining them; *fortitude* encounters the difficulties that lie in our way to them; and *temperance* directs to the right use or moderate enjoyment of them.

JURISPRUDENCE.

Q. What is Jurisprudence?

A. Jurisprudence is the science of what is just and unjust; or the knowledge of the laws, rights, customs, and ordinances, necessary for the administration of justice.

Q. Whence is the word Jurisprudence derived?

A. Jurisprudence is compounded of the Latin words, *juris*, the genitive case of *jus*, right, and *prudentia*, knowledge or skill.

Q. How are the laws distinguished?

A. The laws are distinguished into the Law of Nature, the Law of Nations, and Civil Law.

Q. What is the Law of Nature?

A. The Law of Nature is that which nature and reason have taught to mankind; as the power of parents over their children.

Q. In what consists the Law of Nations?

A. The Law of Nations consists in certain rules, sanctioned by all civilized nations, against violating hospitality; or encroaching upon the privileges of ambassadors, &c. sent by one state to another.

Q. What is Civil Law?

A. Civil Law, in professional language, is derived from the ancient statutes of the Romans; but, in a general sense, it is the peculiar law of every nation, ordained to provide for the public utility, and the necessities of the people, considered as a body corporate. When this respects a city or borough, which enjoys particular privileges, it is called *municipal law.*

Q. Specify the several kinds of law now used in England.

A. The laws of England, are,—

First, the *common law;* containing a summary of all the rights and privileges in what is called Magna Charta, or the great charter of England,

and a reference to those laws which have been established by ancient usage.

Second, *statute law;* consisting of the statutes, acts, and ordinances, of the king and parliament.

Third, *canon law;* which is a collection of constitutions, decisions, and maxims, for a rule in church government.

Fourth, *martial law;* used in all military and maritime affairs.

Fifth, *forest law;* which relates to the regulation of forests and the chase.

Q. What are the laws now prevalent in the United States?

A. Each one of the United States, is governed by laws framed by its own legislature, and by the common law of England; but the army and navy are regulated, in particular cases, by martial law. The laws of congress, also, are binding throughout the Union, in all matters which concern our general welfare, as a nation.

OF GOVERNMENT.

Q. What is the object of Government?

A. The object of Government is, or ought to be, the protection of the lives, properties, rights, and privileges, of the people, collectively and individually.

Q. How many kinds of national Government are there?

A. There are four kinds of national Govern-

ment, viz. Monarchial, Aristocratical, Democratical, or Republican, and Mixed.

Q. What is Monarchial Government?

A. Monarchial Government is that in which the supreme authority is in the hands of one person; who is styled a sovereign, emperor, monarch, king, prince, &c.

Of these, some are *absolute* or *despotic* in their authority; i. e. they have no rule for their conduct, but their *own will*, and are therefore absolute masters of the lives and property of their subjects: others are *limited;* having their powers strictly defined and restrained by the laws.

Q. What is an Aristocratical Government?

A. An Aristocratical Government is that wherein the nobles, or great men of a nation, exercise the supreme authority, without the suffrages of the people. If their numbers be small, it is called an *oligarchy.*

Q. What is a Democratical or Republican Government?

A. A Democratical or Republican Government is that wherein the people have the sovereign authority in their own hands; whence, it is delegated, for a given time, to those whom they may choose to appoint as their representatives in congress, parliament, &c.

This government, wherein all men, by wisdom and patriotism, may equally aspire to posts of honour and trust among their fellow citizens, as they may aspire to heaven, by the practice of virtue and piety, is the only true, free, and Republican Government.

Q. What is to be understood by a mixed Government?

A. A mixed Government is one wherein any two, or more, of the preceding forms, are blended; as, in Great Britain; where the Government is a compound of monarchy, aristocracy, and democracy.

The country under a monarch, emperor, king, prince, duke, &c. is called an empire, kingdom, principality, dukedom, &c. but that under an aristocracy or democracy, particularly the latter, is termed a *state*, republic, or commonwealth.

Q. What appears to have been the earliest form of Government among men?

A. The earliest form of Government among men, seems to have been *Patriarchal;* or one in which the chief magistrate or ruler sustained the character of *father of his people.*

Q. Into how many branches or departments is Government divided?

A. Government is divided into three branches, viz: the *Legislative*, whose business it is to make the laws—The *Executive;* by whom the laws are carried into effect, obedience enforced, or transgression punished—and the *Judiciary;* whose right it is to explain the laws, determine controversies between man and man, and pronounce sentence of penalty or punishment.

The fundamental laws of a country or state, which secure the rights of the people, and regulate the conduct of their rulers, are termed its *Constitution.*

OF POLITICS.

Q. What are Politics?

A. Politics are the science of government.

Q. What is necessary to the forming of an able politician?

A. An able politician must possess an accurate knowledge of the whole condition of his own, and of every other country; with regard to geographical situation, and government; history, laws, population, productions, commerce, &c.

OF COMMERCE.

Q. What is Commerce?

A. Commerce is the exchanging of one commodity for another; or it is the buying and selling of merchandise, with a view of acquiring profit. It appears to be nearly as ancient as the world: and at first consisted simply in exchanging things necessary for life.

This is, even now, the state of commerce amongst the people on the coast of Siberia; in Russian and Norwegian Lapland; and with many of the Asiatic and African tribes, as well as of those of America. Money was not, at a very early period, known; nor is it now in use, as a medium of trade, amongst the people here mentioned.

Q. What nations have made themselves most famous in commerce?

A. The people most famous in commerce, were the Phenicians, Egyptians, Carthaginians, and Rhodians; and, in modern times, the Flemings, Venetians, Genoese, Portuguese, and Dutch; but especially the British, and Americans.

The famous society of the Hanseatic Towns, joined n a league, offensive and defensive, is commonly believed to have been instituted at Bremen. It was not, in the beginning, composed of more than the towns situated on the Baltic sea, or of those that were only a little distant; but, its reputation increasing, there were few of the commercial towns in Europe, that did not become of the number.

Immediately before the great French revolution, this society comprised Lubeck, Hamburgh, Bremen, Rostock, Brunswick, and some others; but it now, as well as many other ancient associations, is totally dissolved.

LOGIC.

Q. What is Logic?

A. *Logic is the science of correct thinking;* or, it is the art of using reason well in our inquiries after truth, and in the communication of it to others.

Q. What are the principal operations of the mind?

A. The principal operations of the mind, are *perception, judgment, reasoning,* and *disposition.*

Q. Define *perception.*

A. *Perception* is the *art of apprehending,*

seeing, or conceiving in the mind, the existence, nature, or properties of what we contemplate.

Q. What is the *result of perception?*

A. The *result of perception* is *an idea*, or *mental image;* or it is the view which the mind takes of objects now no longer present; as,

The *steeple* which we saw, and the *orator* whom we heard, though far away, are still before the eye of the mind.

Q. What is *judgment?*

A. *Judgment* is that operation of the mind by which we compare two or more ideas together, with a view of determining whether they agree or disagree.

Q. What is a judgment expressed in words, called?

A. A *judgment* expressed in words, is called a *proposition;* of which there are several kinds; viz.—1. *Affirmative;* as, Man is an intelligent being;—2. *Negative;* as, Birds and beasts do not reason;—3. *Conditional;* as, If we rise early, we shall save time.

Q. What is *reasoning?*

A. *Reasoning*, or argumentation, is that operation of the mind by which we draw our conclusions on any subject that is not, in itself clear, by comparing it with other similar subjects, that are clear, known, and evident.

Q. What are these *conclusions*, or acts of reasoning, called?

A. These *conclusions*, or acts of reasoning, when just, are called *syllogisms;* when false, *sophisms.*

EXAMPLES.

No virtuous man is a slanderer:
But Sileno and Garrulous are both slanderers;
Therefore, neither of them is a virtuous man.
A Syllogism.

A church is a building of stone:
A religious assembly is a church;
Therefore, a religious assembly is a building of stone. *A Sophism.*

If the sun be risen, the night is past:
But the night is not past;
Therefore, the sun is not risen.
A Syllogism.

A goose goes upon two feet:
Stultus goes upon two feet;
Therefore, Stultus is a goose. *A Sophism.*

Q. What is *disposition?*

A. *Disposition*, or arrangement, is the order in which we place our *perceptions* and reasonings on any subject, with a view of getting the clearest knowledge of it ourselves, retaining it best in our memory, and communicating it most effectually to others.

Our *perceptions* should be *clear* and *distinct*, full and comprehensive; and orderly in their arrangement.

Q. To whom is the art of Logic most useful?

A. *Logic* is useful to all men; but especially to preachers, lawyers, legislators, and those who are called to reason with, and instruct others.

All who think and judge for themselves, though they may be unconscious of it, are con-

stantly using logic; though it may not be methodized by art.

RHETORIC AND ORATORY.

Q. What is *Rhetoric?*

A. *Rhetoric* or *Oratory*, is the art of speaking justly, methodically, and elegantly upon any subject, so as to please, persuade, and instruct. A speech made or delivered according to the rules of this art, is called an *oration*, and the speaker, an *orator*.

Q. What are the qualifications of a good orator?

A. A *good orator* should possess the five following requisites:

1. *Memory*, to enable him to retain what he has to advance till the proper time and place for introducing it.

2. *Logic*, or a *logical mind*, to direct to the right use of his reasoning powers.

3. *Invention*, to enable him to find out and frame such arguments as are best adapted to convince, persuade, instruct, conciliate, and gain belief.

4. *Disposition*, whereby he may arrange his arguments in the most advantageous manner.

5. *Elocution*, which implies a clear and distinct enunciation, just time and action, proper tones and emphasis, with appropriate, harmoni-

ous language, loud enough to be well heard and understood.*

Q. How many parts has an *Oration?*

A. An *Oration* has five parts, viz:—the Exordium, Narration, Confirmation, Refutation, and Peroration.

Q. What is the *Exordium?*

A. The *Exordium*, or Preamble, is the beginning of the Oration, designed to secure the attention of the hearers, gain their good opinion, and give them a general idea of the subject. It should be brief, modest, and perspicuous.

The *Narration* is a recital of facts as they occurred, or are supposed to have occurred. It should be made as probable, perspicuous, interesting, and concise as possible.

The *Confirmation* is the establishing of the truth, or proposition, as advanced in the Narration.

The *Refutation*—which should ever be lively and pungent—is the refelling of the arguments of the opposing party, by shewing them to be false, unsound, or inconclusive.

The *Peroration*, or conclusion, recapitulates the principal arguments, in a concise, forcible,

* *Elocution* comprises,

1st. *Composition* or the grammatical arrangement, plainness, and propriety of language.

2d. *Elegance;* which consists in the purity, perspicuity, and politeness of language, and is gained chiefly by studying the most correct writers, conversing with polite, well informed people, and making frequent and careful essays in composition.

3d. *Dignity;* which adorns language with sublime thoughts, rhetorical figures, &c.

and impressive manner, so as to excite the feelings, and awaken love, pity, or hatred.

Rhetoricians advise, to place some of the most powerful arguments first, and the feebler next, reserving some of the best for the last.

TROPES OR FIGURES.

Q. What do *Tropes* or *Figures of Speech* denote?

A. *Tropes* or *Figures of Speech* always denote some departure from simplicity of expression. They exhibit ideas in a manner more vivid and impressive than could easily be done by plain language.

EXAMPLE.

A good man enjoys comfort in the midst of adversity. This is simple language; but when I say —"To the upright, there ariseth light in darkness," I use figurative language, and express the same sentiment in a more elegant and impressive manner.

Q. What effects have *Tropes* or *Figures* upon language?

A. *Tropes* or *Figures* greatly enliven, beautify, and enrich language, by furnishing a multitude of words and phrases, suited to express our ideas in all their varieties of shade and difference, and which it would be almost impossible to do, without such figures.

Q. Can you enumerate these figures?

A. Yes—the principal Tropes or Figures are—

Personification, *Apostrophe*, *Simile*, *Metaphor*, *Allegory*, *Irony*, *Hyperbole*, *Climax*, *Antithesis*, *Metonomy*, and *Synecdoche*.

Please to explain each of these Figures.

Personification is the bestowing of sensation, life, or action, upon things inanimate.

EXAMPLES.

The earth *thirsts* for rain.
Cheer'd with the grateful *smell*, old *ocean smiles*.

Behold, the *morn*, in russet mantle clad,
Walks o'er the dew of yon high eastern hill.
At his command, the uprooted *hills* retir'd,
Each to his place: *they heard* his voice, and went
Obsequious. *Hill* and *valley* smil'd.

Ye *woods* and *wilds*, whose melancholy gloom
Accords with my soul's sadness, and draws forth
The voice of sorrow from my bursting heart,
Farewell awhile: I will not leave *you* long.

The *Apostrophe* bestows an *ideal presence* upon real persons who are either dead or absent. It addresses them as if actually present.

EXAMPLES.

Retire, for it is night, *my love*, and the dark winds sigh in thy hair. *Retire* to the hall of my feasts, and think of the times that are past; for I will not return until the storm of war is gone.—*Ossian*.

Weep on the rocks of roaring winds, O *maid of Inistore:* bend thy fair head over the waves, *thou* fairer than the ghost of the hills, when it moves in a sunbeam at noon, o'er the silence of

Morven. He is fallen! Thy youth is low,—pale beneath the sword of Cuchullin.—*Ossian.*

A *Simile* is a comparison by which any thing is illustrated. This figure, equally familiar and beautiful, discovers resemblances, real or imaginary, between objects or actions, which in their general nature, are dissimilar.

EXAMPLES.

The music of Caryl, was, like *the memory of joys that are past*, pleasant and mournful to the soul.

Often, like *the evening sun*, comes *the memory of former times* upon my soul.

She never told her love;—
But let *concealment*, like a *worm i' the bud*,
Feed on her damask cheek: *She* pin'd in thought;
And, like *patience on a monument*, sat smiling
at grief.

A *Metaphor* is the putting of a word to a use which, in its original import, it does not admit.

A *Metaphor* in borrow'd words compares,
As, for *excess*, we say—a *flood* of tears.

EXAMPLES.

Spring awakes the flowers; *Autumn gathers* the fruit.

Wallace was a *thunderbolt* of war;
Fingal, the *gale* of spring.

A *Metaphor* expresses a comparison without using the signs of comparison; and in this alone it differs from a *Simile*. Comparison is the foundation of both. Our *Washington* was the *pillar* of Columbia's hope —

This is a *Metaphor.*—*Washington,* like a *mighty pillar* upheld the state.—This is a *Simile.*

Charles the twelfth was the *lion* of the north.
Metaphor.

Charles the twelfth was like a *lion* prowling for his prey. *Simile.*

An *Allegory* is a continued metaphor; or it is a figurative representation in which something is intended, different from what is expressed by the words literally taken.

EXAMPLES.

Venus (love) grows cold without *Ceres* (bread) and *Bachus,* (wine.)

An *Allegory* is a chain of Tropes—

I've pass'd the *shoals;* fair *gales* now *swell* my hopes.

The following is a correct and most beautiful Allegory, representing the people of Israel under the image of a vine.

"Thou hast brought a *vine* out of Egypt; thou hast cast out the heathen, and *planted it:* thou preparedst room before *it,* and didst cause *it to take deep root,* and *it* filled the land.

"The hills were covered with the *shadow of it,* and the *boughs thereof* were like the goodly cedars.

"*She* sent out *her boughs* unto the sea, and *her branches* unto the river.

"Return, we beseech thee, and behold and visit *this vine.*"—80*th Psalm.*

Irony, dissembling with an air,
Means otherwise than words declare.

EXAMPLES.

Cry aloud; for he is a god: either he is talk-

ing, or he is pursuing, or he is on a journey; or, peradventure he sleepeth, and must be awaked.
1 *Kings*, xviii. 27.

Hyperbole soars high, or creeps too low;
Exceeds the truth, things wonderful to show.

EXAMPLES.

Achilles was *fleeter than the stag—swift as the wind.*

A *Climax*, or gradation, is a figure in Rhetoric, which gradually increases the representation till it reaches its highest point of interest or importance.

EXAMPLES.

A *Climax*, by gradation, *a-* or *de-*scends.

They were my *countrymen*, my *neighbours*, my *friends!*

She was *young*, *beautiful*, *amiable*, *accomplished*, and *pious.*

An *Antithesis* is a figure which strengthens language, argument, or representation, by *opposition* or *apposition.*

EXAMPLES.

If you wish to be rich, study not to *increase your stores*,—but to *diminish your desires.*

Tho' deep, yet clear; tho' gentle, yet not dull;
Strong, without rage; without o'erflowing, full.

Metonomy is the putting of the *cause* for the *effect*, or the *effect* for the *cause;* the *container*, for the *contained;* or the *sign* for the thing *signified.*

EXAMPLES.

We are reading *Virgil*—i. e. *Virgil's works.*
Gray hairs [*old age*] should be honoured.
The *kettle* [the water in the kettle] boils.
He addressed the *chair.*
The *fair* [the ladies] are fickle.

A *Synecdoche* puts *a part* for *the whole, the whole* for *a part.*

EXAMPLES.

Thirty *head* [*cattle*] perished in the *waves,* [the *sea.*]
While o'er the roof [house] loud thunders break.

GRAMMAR.

Q. What is Grammar?

A. Grammar is the art of rightly expressing our thoughts, either in oral or written language.

Q. Whence is the word Grammar derived?

A. The term Grammar is taken from the Greek word [*gramma,*] which signifies a letter.

Q. How is Grammar divided?

A. Grammar is divided into four parts: etymology, orthography, syntax, and prosody.

Etymology deduces and explains the origin, reason, and derivation of words; in order to arrive at their first and primary signification.

Orthography, or spelling, teaches to write words with all the proper and necessary letters.

Syntax is the constructing or right ordering

of words in a phrase or sentence; so as to make the meaning clear and distinct.

Prosody treats of the true pronunciation of syllables, in respect to quantity and accent.

Q. What are meant by quantity and accent?

A. Quantity is the length of time taken up in pronouncing a syllable; and accent, the pronouncing of it with a stronger or a weaker tone of voice.

Q. How many kinds of words are there?

A. Ten; commonly called parts of speech.

Q. What are their names?

A. The article, noun, pronoun, adjective, verb, participle, adverb, preposition, conjunction, and interjection.

Q. Is it necessary to study the Grammar of our own language?

A. Yes: Without a competent grammatical knowledge of our own language, we should be ignorant of its beauties, and unable to express ourselves correctly, or politely, even on the most trifling occasions.

LANGUAGE.

Q. What is Language?

A. Language is a set of words, or an assemblage of expressions, which chance or caprice has established among a people, in order to communicate their thoughts one to another.

Q. Whence the origin of language?

A. Language is supposed to be of divine ori-

gin, and supernaturally communicated to the first man.

Q. Whence comes the diversity of Languages?

A. The diversity of Languages, is generally allowed to have taken its rise from the confusion of tongues, at the building of the tower of Babel.

Q. Where may an account of this event be seen; and by whom is it given?

A. We have a particular account of the confusion of tongues given in the eleventh chapter of Genesis, written by Moses.

What is the most ancient language, is a point that has been much controverted. The majority seem inclined to the Hebrew; deeming it the primitive language, and the source of all the rest: the Syriac has the next greatest number of advocates; but many support the Greek; others maintain the Teutonic, and some, the Chinese.

Q. What are the principal languages now used in Europe and America?

A. The English, French, German, Spanish, and Italian, are almost the only languages now used in Europe or America?

The English language, whose root is chiefly Saxon, enriched by derivations from the Latin, and by familiar phrases from the French, with occasional formations from the Greek language, is not excelled by any other, for copiousness and strength.

The French tongue is extremely brisk and lively; composed of ancient Gallic words, and, like the English, largely indebted to the Latin.

The German has a variety of dialects; principally of Celtic origin.

The Italian is almost wholly an alteration of the Latin; and the Spanish language also plainly discovers itself to be of the same family.

Q. Who was the inventor of letters?

A. There being no authentic relation of any alphabetical character before the flood, the greater number of writers have contented themselves with tracing the origin of letters to Moses; who is supposed to be the same with the Egyptian Thoth or Hermes.

That orderly arrangement of the letters, called the alphabet, is generally ascribed to Cadmus, king of Thebes: he first brought letters from Phenicia into Greece, about 1045 years before Christ; whence, in the following ages, they spread over the rest of Europe.

POETRY.

Q. What is Poetry?

A. Poetry is a species of composition, made according to certain harmonious measures, or proportions of time and sound.

Q. What is a Poem?

A. A Poem is a complete or finished piece of Poetry; as Homer's Iliad.

Q. What is Rhyme?

A. Rhyme is that kind of Poetry in which the terminating sound of one line agrees with that of another; as,

Soon as we draw our infant breath,
The seeds of sin grow up for death.

Q. What is Blank Verse?

A. Blank Verse, like other Poetry, is measured, but does not rhyme; as,

Night, sable goddess! from her ebon throne,
In rayless majesty, now stretches forth
Her leaden sceptre o'er a slumbering world.
Silence, how dead! and darkness, how profound!
Nor eye, nor list'ning ear, an object finds:
Creation sleeps. YOUNG.

Q. What is meant by *measure*, in Poetry?

A. The term *measure*, in poetry, means the number of syllables, or of feet, contained in a line.

Q. What measures are most in use?

A. The measures most in use are those of ten, eight, and seven syllables.

Q. Give an example of each.

Of ten.

The bending Hermit here a pray'r begun—
"Lord, as in heav'n, on earth thy will be done."
Then, gladly turning, sought his ancient place;
And pass'd a life of piety and peace.

PARNELL.

Of eight.

The woodbine wafts, in odours meek,
To kiss the rose's glowing cheek;
Pale twilight sheds her vagrant show'rs,
T' awake Aurora's infant flow'rs:
May smiles on ev'ry face I see,
But, ah! she smiles no more on me!

MRS. ROBINSON

Of seven.

Oh then, e'er the turf or tomb
Cover us from ev'ry eye;
Spirit of instruction, come,
Make us learn that we must die!

COWPER.

There are several other shorter measures in use, but they are not so common.

Q. What is Pastoral Poetry?

A. Pastoral Poetry is that which describes a shepherd's life, or the life of rural nymphs and swains.

Q. What is an Elegy?

A. An Elegy is a mournful poem, or funeral song.

Q. What is Lyric Poetry?

A. Lyric Poetry is that which is generally used in the composition of odes and songs, designed to be sung to the lyre or harp.

Q. What is Pindaric ode?

A. Pindaric ode, so called from its inventor, Pindar, is a sort of Poetry, which consists of loose and free numbers, of unequal measures.

Q. What is Satire?

A. Satire is a free, witty, sharp, and jocose, poem; severely reproving the vices and follies of those in whom they are found.

Q. What is Comedy?

A. Comedy is an agreeable, humorous representation of the customs of common life.

Q. What is Tragedy?

A. Tragedy exhibits the actions of virtuous

and illustrious persons; so as to excite sympathy, or promote the patriotic, heroic, and social virtues.

Tragedy and Comedy are called dramatic Poetry.

Q. What is an Epic or Heroic poem?

A. An Epic or Heroic Poem, is a poetical narration or rehearsal of the illustrious and important actions of the person celebrated in the poem; as, the exploits of Achilles, in the Iliad of Homer.

Q. An Epigram—what is that?

A. An Epigram is an inferior kind of poem, whose peculiar character is brevity, beauty, and a sharp turn of wit at the close.

Q. What is an acrostic—a rondeau—a charade—echo—rebus, &c.?

A. They are a trifling kind of productions, not here worth a description.

Q. What is a poetical foot—and why so called?

A. A certain number of syllables connected, form what is called a poetical foot. They are termed feet, because it is by their aid, that the voice, as it were, steps along through the verse in a measured pace: and it is necessary that the syllables which mark this regular movement of the voice, should, in some way, be distinguished from the others.

Q. How many kinds of these feet are there?

A. All the poetic feet are reducible to eight kinds; four of two syllables, and four of three; viz.

A Trochee – ⏑	A Dactyl – ⏑ ⏑
An Iambus ⏑ –	An Amphibrach ⏑ – ⏑
A Spondee – –	An Anapæst ⏑ ⏑ –
A Pyrrhic ⏑ ⏑	A Tribrach ⏑ ⏑ ⏑

Q. How are these several kinds of feet distinguished?

A. A *Trochee* has the first syllable accented, and the last unaccented; as, hātefŭl, péttish.

An *Iambus* has the first syllable unaccented, and the last accented; as, bĕtrāy, cònsìst.

A *Spondee* has both the words or syllables accented; as, the pāle mōōn.

A *Pyrrhic* has both the words or syllables unaccented; as, ŏn thĕ tall tree.

A *Dactyl* has the first syllable accented, and the last two unaccented; as, lābŏurĕr, pòssible.

An *Amphibrach* has the first and last syllables unaccented, and the middle one accented; as, dĕlīghtfŭl, domèstic.

An *Anapæst* has the first two syllables unaccented, and the last one accented; as, cŏntrăvēne, acquiésce.

A *Tribrach* has all its syllables unaccented; as, nūmĕrăblĕ, cónquerable.*

* Some of those feet may be denominated principal ones; as pieces of poetry may be wholly or chiefly formed of any of them. Such are the Iambus, Trochee, Dactyl, and Anapæst.

These may also be divided, each into several species, according to the number of feet or syllables of which they are composed. They are capable also of numerous variations, by intermixing them, and by the admission of the secondary feet.

The Spondee, Pyrrhic, Amphibrach, and Tribrach, are secondary feet.

Q. What advantage then, is to be derived from understanding these feet?

A. An acquaintance with these feet, enables those who read Poetry, to judge of its correctness, to relish its beauties, and to read it, in the hearing of others, with more propriety and effect.

Give an example of Trochaic verse.

Rēstlĕss mōrtăls tōil fŏr nōught;
Bliss in vain from earth is sought;
Bliss, a native of the sky,
Never wanders. Mortals, try;
There, you cannot seek in vain;
For, to seek her, is to gain.

Īdlĕ, āftĕr dīnnĕr, īn hĭs chāir,
Sat a farmer, ruddy, fat and fair.

Give an example or two of Iambic verse.

Ănd māy, ăt lāst, mў weārў āge
Fĭnd oūt ă peācefŭl hērmĭtāge.

Hŏw lōv'd, hŏw vālŭ'd ōnce, ăvāils thĕe nōt,
To whom related, or by whom begot:
A heap of dust alone remains of thee;
'Tis all thou art, and all the proud shall be.

Bĕ wīse tŏ-dāy; 'tĭs mādnĕss tŏ dĕfēr;
Next day the fatal precedent will plead;
Thus on, till wisdom is push'd out of life.

Give an example of Dactylic measure.

Frōm thĕ lŏw pleāsūres ŏf thīs fāllĕn nātūre,
Rise we to higher, &c.

Give an example of Anapæstic verse.

Ŏ yĕ wōods, sprĕad yŏur brānchĕs ăpāce,
To your deepest recesses I fly;
I would hide with the beasts of the chase;
I would vanish from every eye.

Māy ĭ gōvĕrn mў pāssĭŏns, wĭth ābsŏlūte swāy,
And grow wiser and better, as life wears away.

Q. How many kinds of poetical pauses are there?

A. There are two kinds of poetical pauses—one for the sense, and another for the melody; perfectly distinct from each other. The former is called the *sentential pause;* and the latter, the *harmonic pause.*

The sentential pauses are those which are known to us by the name of stops; as, the comma, semicolon, colon, &c.

Q. What have you to remark respecting the harmonic pause?

A. The harmonic pauses may be subdivided into the *final* pause, and the *cæsural* pause. These sometimes coincide with the sentential pauses, and sometimes have an independent state; that is, exist where there is no stop in the sense.

Q. Where, in reading Poetry, is the *final*, and where, the *cæsural* pause, to be made?

A. The final pause takes place at the end of the line, closes the verse, and marks the measure: the cæsural pause divides the line into equal, or unequal parts, falling generally on the fourth, fifth, or sixth syllable, in heroic verse.

The final pause preserves the melody, without interfering with the sense; for, as it has no peculiar note of its own, but always takes that which belongs to the preceding word, it changes with the matter, and varies with the sense; and thus, prevents monotony.

Exemplification of the cæsural pauses: ["]

The silver eel", in shining volumes roll'd,
The yellow carp", in scales bedropp'd with gold.

Round broken columns", clasping ivy twin'd,
O'er heaps of ruin", stalk'd the stately hind.

Oh, say, what stranger cause", yet unexplor'd,
Could make a gentle belle", reject a lord.

The line is sometimes divided into four parts, by the introduction of what is called a demi-cæsura; thus,

Warms' in the sun", refreshes' in the breeze,
Glows' in the stars", and blossoms' in the trees;
Lives' through all life", extends' through all extent,
Spreads' undivided", operates', unspent.

MUSIC.

Q. In what does Music consist?

A. Music consists in a succession of pleasing sounds, with reference to a particular, internal sense, implanted in us, by the Great Author of Nature.

Q. What does Music teach, considered as a science?

A. Music, considered as a *science*, teaches us the just disposition and true relation of sounds; so that they may affect us in the most agreeable manner: as an *art*, it enables us to express these sounds with facility and correctness.

Q. What is to be understood by the composition of Music?

A. The composition of Music is the art of framing pieces of music, and writing them in notes, upon paper; according to the rules of the science.

Q. How many sounds may be expressed by the human voice.

A. The human voice is ordinarily capable of expressing twenty-two sounds.

Q. What is Melody?

A. Melody is the agreeable effect which arises from the succession of single sounds.

Q. What is Harmony?

A. Harmony is the pleasing union of several sounds.

Q. What are the principal qualities of musical sounds?

A. The primary and essential qualities of

musical sounds are, *relative acuteness* or *gravity*, and *proportionate duration.*

Bodies of unequal *size*, *length*, or *tension*, emit sounds differing both in duration and in gravity or acuteness. Thus, in a set of regularly tuned bells, the largest gives the *gravest* sound, and the smallest, the most *acute*.

Human voices also differ in this respect; a man's voice being more grave than that of a woman.

Q. Whence is the word Music derived?

A. The term Music, is supposed to have been originally formed from the Latin word *musa*, muse; the Muses being considered as its inventors.

Q. Had not Music a very early origin?

A. Music appears to have been among the most ancient of the arts; particularly that of *vocal music.* Man, in the early ages, had not only the various tones of his own voice on which to make his observations, before any other art, or any instrument, was found out, but had the various natural strains of birds to give him occasion to improve his own voice, and the modulations of which it was capable.

Q. How are the various musical instruments supposed to have been invented?

A. The first invention of wind instruments, is ascribed to the observation of the wind whistling in the hollow reeds.

As for other kinds of instruments, there were so many occasions for using cords or strings, that men could not fail to observe their various sounds; and this may have given rise to stringed instru-

ments. And in regard to pulsatile instruments, such as drums, cymbals, &c. they may have arisen from the observation of the sounds of hollow and concave bodies.

Q. Is not Music in great repute?

A. Music has been in the highest esteem in all ages, and among all people. Authors, to express their high admiration of it, have inculcated, that it was used in heaven, and was one of the principal entertainments of the gods, and of the souls of the blessed.

Q. What are the effects of Music?

A. Music not only delightfully recreates the mind, and gives it new vigour for business, but, by it, diseases are said to have been cured, seditions quelled, passions raised and calmed, and even madness occasioned.

OPTICS.

Q. What are Optics?

A. Optics is that science which explains the nature and laws of vision; whether natural, as performed by the eye; or, artificial, as effected by instruments.

Q. How is vision produced?

A. Vision, or the act of seeing by the eye, is produced through the rays of light which are reflected from an object, and received in at the pupil; and which, being refracted, in their passage through the coats and humours, to the retina, and thence conveyed, by the optic nerve, to the

common sensorium in the brain, cause the luminous object to be perceived, by the mind.

Q. What are the other benefits of this science?

A. Besides explaining the manner in which vision is performed in the eye, it treats of sight, in general; explains the several modifications which the rays of light undergo in the eye, and why some can only see a short, and others a greater, distance; shows why objects appear sometimes greater, and sometimes smaller; sometimes distinct, and sometimes confused; sometimes near, and sometimes remote: and accounts for the production of light, colours, &c. All the rules of perspective have their foundation in Optics.

MATHEMATICS.

Q. What are Mathematics?

A. Mathematics is a science that contemplates whatever is capable of being numbered or measured.

Q. What is the etymology of the word?

A. The word Mathematics is derived from the Greek; and the original word signifies *discipline* or *science;* for, this is the oldest science, and the rest took their common name from it.

Q. How are Mathematics divided?

A. Mathematics are divided into pure and mixed: the *pure* considers quantity, abstractedly, and without any relation to matter or bodies; the *mixed* are interwoven with physical considerations.

Q. Of what use is this science?

A. The science of Mathematics, opens and extends our ideas, strengthens and improves our understanding, fixes our attention, and, by giving a habit of just reasoning, prepares us for all other kinds of study, and every important employment of life.

Q. What are its principal branches?

A. The principal branches of Mathematics are, Arithmetic, Geometry, Mechanics, Optics, Astronomy, Geography, Chronology, and Architecture.

ARITHMETIC.

Q. What is Arithmetic?

A. Arithmetic is the science or knowledge of numbers, and has five principal rules for its operations; namely; Numeration, Addition, Subtraction, Multiplication, and Division.

Numeration teaches to read or express the true value of any number of figures, written down, or named.

Addition, to collect several numbers or quantities into one sum; as, 7 and 5 are 12, and 8 are 20.

Subtraction takes a less number from a greater, and shows the remainder or difference.

Multiplication enables us to find the amount of any number taken any proposed number of times; so that it is a compendious kind of addition.

Division is the reverse of Multiplication, and

shows how often one number is contained in another.

Reduction, the Rule of Three, Practice, Interest, Fellowship, the Extraction of Roots, &c. are no more than so many combinations of those five elementary rules.

Q. To whom is Arithmetic necessary?

A. A knowledge of Arithmetic is necessary to every one. It is the soul of commerce, and essentially necessary in every department of life.

GEOMETRY.

Q. What is Geometry?

A. Geometry is a science teaching the mensuration of quantity, extension, and magnitude; that is, of lines, surfaces, and solids.

The word is from the Greek, and signifies *to measure the earth.* It had its rise among the Egyptians; who were, in a manner, compelled to invent it, to remedy the disorders occasioned by the annual inundations of the river Nile, which bore away the bounds and landmarks of their estates.

Q. What is a Line?

A. A Line is length only, having neither breadth nor thickness. It is supposed to be formed by the motion of a point; and is to be conceived as the limit of a surface, and not as a part of that surface, however small.

Q. What is a Surface?

A. A Surface or Superficies, is a magnitude,

extending in length and breadth, but without thickness or depth. It is produced by the motion of a line; and is chiefly considered as the external part of a solid.

Q. What is a Solid?

A. A Solid is magnitude, endued with three dimensions, or extended in length, breadth, and depth. It is terminated, or contained, under one or more planes or surfaces, as a surface is under one or more lines.

Q. How is Geometry divided?

A. Geometry is divided into four principal branches; Altimetry, Longimetry, Planimetry, and Stereometry.

Q. Explain the purport of each?

A. *Altimetry* includes the measuring of lines, either in respect to height or depth; whether accessible or inaccessible.

Longimetry is the art of measuring lengths and distances; both, accessible; as roads, &c. and inaccessible; as, arms of the sea, &c.

Planimetry teaches the mensuration of planes, or surfaces; which is performed by square measures; as, square inches, square feet, &c. It includes *surveying*, or the art of measuring land; by taking the dimensions, laying down the same in a map or draught, and finding its contents or area.

Stereometry is the mensuration of all kinds of solid bodies, by cubic measures; as, cubic inches, cubic feet, &c. This includes *gauging*, or the art of finding the contents of any vessel, or the quantity of liquid contained therein.

METAPHYSICS.

Q. What are Metaphysics?

A. *Metaphysics* may be considered as the *science of mind.* It contemplates the nature and properties of abstract qualities, and of immaterial or spiritual beings; as, *Deity*, the *soul, angels, intellect*, &c.

Physics treats of material or natural things; and judges of them from experience.

Metaphysics is applied to the contemplation of immaterial or spiritual things: and judges of them only by abstraction, independent of material things.

ASTRONOMY.

Q. What is Astronomy?

A. Astronomy is a mixed, mathematical science; teaching the knowledge of the celestial bodies, their magnitudes, motions, distances, periods, eclipses, and order.

Q. What is the use of this science?

A. By knowledge derived from Astronomy, the size of the earth is discovered, the situation of countries ascertained, trade and commerce carried on to the remotest parts of the world, and its various products distributed for the health and comfort of the human family.

By the study and grandeur of this sublime science, our faculties are enlarged and ennobled, and we soar above the comparatively little things of this nether world; while, at the same time, our

understandings are convinced of the existence, power, and goodness, of the Supreme Being; who carries on the wonderful harmony and connexion observable throughout the solar system.

OF THE SOLAR SYSTEM.

Q. Of what does the *Solar System* consist?

A. The Solar System consists of the sun, with eleven primary, and eighteen secondary planets, or moons, and a number of comets.

Q. Give some particulars of the Sun.

A. The Sun, an immense globe of fire, is fixed in the centre of the system, having a central motion about his own axis, in 25 days 6 hours; as is evident by observing the black spots seen on his disk or surface. He is 763,000 miles in diameter; about one million of times larger than the earth; and dispenses light and heat to all the planets and comets revolving round him.

Q. What are the Planets?

A. The Planets are opaque, spherical bodies; having no light of their own, but shining by the reflected light which they receive from the Sun. That side of them, only, is illuminated, which is turned towards him.

Q. Can you name these Planets?

A. The names of the Planets are, Mercury, Venus, the Earth, Mars, Ceres, Pallas, Juno, Vesta, Jupiter, Saturn, and Herschel.

Of these, the Earth has one moon; Jupiter, four; Saturn, seven; and Herschel, six. The

other seven primaries, appear to have no moons or secondaries.

Q. What motions have these Planets?

A. They have each a two-fold motion—one in their orbit, called their annual or yearly motion, and another around their own axis, termed their diurnal or daily motion.

Q. In what direction do these planets move?

A. All the primaries move round the sun, from west to east, and the secondaries round their primaries, in the same direction, except those of Herschel, which move from east to west.

Q. What particulars have you to mention concerning each of the Planets?

A. *Mercury* is the nearest Planet to the Sun, and goes round him in 87 days 23 hours of our time, nearly; which is the length of his year; but being seldom seen, on account of his proximity to the Sun, and no spots appearing on his surface, the time of his rotation on his axis, or the length of his day, is unknown. His distance from the Sun, is computed to be thirty-seven millions of miles; his diameter, 3200; and, in his course round the Sun, he moves at the rate of 105,000 miles every hour.

Venus, the second Planet in order from the Sun, is computed to be 68 million of miles from the Sun. By moving at the rate of 76,000 miles every hour in her orbit, she completes her annual revolution in 224 days 17 hours.

Her diameter is 7700 miles, and her diurnal rotation is performed in 24 of our days, nearly. When she appears to the west of the Sun, she

rises before him, and is called the Morning-star; and when to the east of the Sun, she shines after he is set, and is then called the Evening-star.

Q. Why are Mercury and Venus called inferior Planets?

A. Because their orbits are included within the earth's orbit, as appears from their exhibiting all the varieties of shape and aspect which the moon does, during their revolutions round the Sun.

The *Earth* is the third Planet in order from the Sun; and at the distance of more than 95 million of miles from him. She completes her annual circuit in 365 days 5 hours 49 minutes; moving at the rate of 58,000 miles every hour: which motion, though 120 times swifter than that of a cannon-ball, is little more than half the velocity of Mercury in his orbit.

The *Earth's* diameter is 7970 miles. By turning round her axis, every 24 hours, from west to east, she causes an apparent diurnal motion of all the heavenly bodies, from east to west. This Planet is attended by a satellite, or secondary Planet, called the *Moon;* which respects the Earth as the centre of its motion; going round the Earth, from change to change, in 29 days, 12 hours, 44 minutes; and accompanying her around the Sun every year.

The *Moon's* diameter is 2180 miles, and her distance from the Earth 240,000 miles: she completes her orbit in 27 days, 7 hours, and 43 minutes; moving about 2290 miles every hour; and turns round on her axis, in exactly the same time

that she goes round the earth; which is the reason of her always presenting to our view, the same face.

Mars is the next in order, or fourth from the Sun; being the first beyond the orbit of the Earth; and at the distance of 144 millions of miles from the Sun. He moves in his orbit at the rate of 55,000 miles every hour, and completes his revolution in 1 year, 321 days, 17 hours, and 21 minutes; which is the length of his year.

The diameter of Mars is 4200 miles; and his diurnal rotation is performed in 24 hours 39 minutes. He sometimes appears gibbous, but never horned like the Moon; which shows that his orbit circumscribes that of the earth: and hence, Mars, Jupiter, Saturn, and Herschel, are called *superior Planets.*

Jupiter, the largest of all the Planets, is fifth in the system; and at the distance of 490 millions of miles from the Sun. By moving in his orbit at the rate of 29,000 miles every hour, he finishes his annual revolution in 11 years, 314 days, 12 hours. His diameter is computed to be 89,000 miles: and by a prodigiously rapid motion on his axis, he performs his diurnal rotation in 9 hours 56 minutes.

The body of Jupiter is surrounded by several parallel faint substances, called belts; and he is attended by four satellites, which revolve round him and enlighten him by night, as our Moon does the Earth.

Saturn is the sixth in the system; and about 900 millions of miles from the Sun. Travelling

at the rate of 22,000 miles every hour, he performs his annual circuit in 29 years, 167 days, 5 hours. His diameter is computed to be 79,000 miles; and his motion on his axis, is so rapid, that his diurnal rotation is performed in 10 hours 16 minutes.

Saturn has belts, similar to those of Jupiter, and is surrounded also by a thin broad ring, as an artificial globe is by a horizon: its diameter is about 21,000 miles; which is equal to its distance from the body of the planet on all sides. Saturn has also seven satellites; which go round him on the outside of his ring, and nearly in the same plane with it.

Herschel is the most remote of all the Planets, from the Sun, and was discovered to belong to this system, in 1782, by Dr. Herschel, of Bath. Its distance from the Sun is about 1800 million of miles; its magnitude is about 90 times greater than that of the Earth; and its revolution round the Sun is performed in about 83 years. Six satellites, as attendant upon Herschel, have been discovered.

Q. Can you form any measure to show the proportionate bulks of these planets?

A. Supposing a globe of 24 inches diameter, to be the size of the Sun, the proportionate diameter of Mercury would be about one-eighth of an inch; of Venus, one-fifth; of the Earth, one-fourth; of Mars, one-sixth; of Jupiter, two and a half inches; of Saturn, one inch nine-tenths; and of Herschel, one inch one-tenth.

Q. What might be the distance of the Planets

from the Sun, according to these proportions of their bulk?

A. Mercury would be about 32 yards from the centre of the Sun; Venus, 60 yards; the Earth, 82; Mars, 126; Jupiter, 430; Saturn, 788; and Herschel, 1570 yards. In this proportion, the Moon's distance from the centre of the Earth would be only seven inches and a half.

Q. Can you assist the imagination in forming an idea of the actual distance of the Planets from the Sun?

A. Suppose, that a body projected from the Sun, should continue to fly with the swiftness of a cannon ball, which is at the rate of 480 miles in an hour; this body would reach the orbit of Mercury, in 8 years 290 days; of Venus, in 16 years 59 days; of the Earth, in 22 years 211 days; of Mars, in 34 years 82 days; of Jupiter, 116 years 166 days; of Saturn, 213 years 329 days; and of Herschel, in 427 years 290 days.

Q. What are the Comets belonging to this system?

A. Comets are opaque, globular bodies, with transparent trains or tails; moving in very elliptical orbits, and in every direction, around the Sun. They become visible to us through only a small part of their course, as they approach the Sun; and remain lost to us through their immense journeys beyond the orbit of the most distant Planet; so that their number and periods cannot be easily determined.

Q. How are their tails accounted for?

A. Their tails seem to be produced by some

luminous matter in their atmosphere, which is visible only in the parts opposite to the Sun.

Q. What is an Eclipse?

A. An Eclipse is a privation of light in any of the heavenly bodies; caused by some other body coming between it and the Sun. There are various kinds of eclipses; but those of the Sun and Moon are the most remarkable.

Q. How is an Eclipse caused?

A. An Eclipse of the Sun—or more properly of the Earth,—is caused by the Moon, as she revolves in her orbit, passing between the Sun and the Earth, and thereby intercepting his light. This Eclipse begins at the west side of the Sun, and can never happen except at the time of the new Moon.

An Eclipse of the Moon is caused by the interposition of the Earth between the Sun and the Moon; this can only happen at the full Moon; for the Earth, being then between the Sun and the Moon, will sometimes intercept his light from the Moon. This Eclipse begins on the east side.

Q. Do the Planets ever eclipse each other?

A. The primary Planets can never eclipse each other, by reason of the bulk of the Sun, and the immense distances of these Planets from him: but a primary may eclipse its secondary, or a secondary, a primary: this is frequently the case with Jupiter and his satellites.

OF THE FIXED STARS.

Q. What are the Fixed Stars?

A. The Fixed Stars are supposed to be of the same nature with the Sun; and of equal, or of greater, magnitude. They shine with their own native lustre, and are diminished in appearance only by their immense distance from us. These stars are said to be fixed, because they have generally been observed to retain the same situations with respect to each other.

Q. What is their distance?

A. The nearest of the Fixed Stars, is computed to be above 32 million of millions of miles from us; which is further than a cannon ball would fly in 700,000 years: and it is very probable that they are situated as far from each other as they are from us; for, there is no visible alteration in their magnitudes, situations, or distances, when viewed from the different parts of the Earth's orbit; consequently, the orbit of the Earth, which is 162 millions of miles in diameter, is only a point in comparison to their distance.

Hence, it is easy to prove, that the Sun, seen from so great a distance, would appear no bigger than a star; and that the surrounding system of Planets and Comets must be invisible from the nearest Fixed Star.—From all this, it is highly probable, that each star is a sun to a system of Planets, which, at various distances, and in different periods, perform their revolutions round

it; though invisible to us, by our best telescopes.

Q. What is the number of the stars?

A. The real number of the Stars can never be known. But as the powers of the telescope are increased, a greater number is discovered. The British catalogue, which includes a great many that cannot be seen without the help of a telescope, contains only about 3000; and of this number, the naked eye cannot, in the clearest night, discover more than 1000.

There is a remarkable track around the heavens, called the *milky way*, from its peculiar whiteness; which, in some parts, is single; in others, double; and was, formerly, thought to be formed by an infinite number of very small stars: but, the telescope shows it to be otherwise; and, therefore, its whiteness must be owing to some other cause.

Q. As the Stars are fixed, what is the cause of their apparent motion?

A. The apparent motions of the Fixed Stars, or their risings and settings, are the effects of the Earth's rotation on her axis from west to east: and our seeing different stars, at different seasons of the year, is owing to the revolution of the Earth in its orbit around the Sun.

GEOGRAPHY.

Q. What is Geography?

A. Geography is that science which describes the surface of this globe, as divided into land and water.

Q. Is the study of Geography necessary?

A. The science of Geography is not only curious and entertaining, but highly useful. It opens and enlarges the mind; gives a true knowledge of the various situations of countries, with their rivers, mountains, &c. and is of such importance in history, that without it, nothing can be understood with satisfaction and correctness.

Q. How is the Earth proved to be globular?

A. 1. By its casting a round shadow upon the moon during an eclipse. 2. By its having been circumnavigated. 3. By our seeing further the higher we are situated. 4. By our seeing the masts of a ship at sea, while the hull is hidden from us by the convexity of the water.

The unevenness of the surface on land, arising from hills and vales, can be no material objection to its rotundity; since the highest mountains bear no more proportion to the whole surface of the Earth, than the unevenness on the rind of an orange does to the roundness of its figure.

Q. What is the *Axis* of the Earth?

A. The Axis of the Earth, is an imaginary right line, passing through its centre, and terminating in the north and south poles.

Q. What is the *Equator*, or Equinoctial Line?

A. The Equator, or Equinoctial Line, is a circle encompassing the globe, in the middle, from east to west, and dividing it into northern and southern hemispheres.

Q. When does the Sun cross this line?

A. The Sun crosses the line on the 20th of March, and 22d of September; when the days and nights are equal, in all parts of the world.

Q. What are Meridians?

A. Meridians are circles which run north and south, cross the Equator, and pass through the poles. Meridians are used to measure longitudes, or the distance of one place, east or west, from another place.

Q. What is the *Ecliptic?*

A. The Ecliptic is the Sun's *apparent* path in the heavens.

Q. What is the Horizon?

A. The Horizon is that circle in the heavens which limits our vision, and divides the upper hemisphere from the lower. It is divided into 32 equal parts, called *points*, of which E. W. N. and S. are termed *cardinal* points.

Q. What are we to understand by the Equinoctial Points, or Equinoxes?

A. The Equinoctial Points, or Equinoxes, are those two points in which the Ecliptic cuts the Equator.

Q. What are the Solstitial Points, or Solstices?

A. The Solstitial Points, or Solstices, are the first points of the signs, Cancer and Capricorn; being 23½ degrees from the Equator, and 90 from the Equinoxes.

The Sun is in the summer Solstice, on the 21st of June, when the days are longest in the northern hemisphere—and in the winter Sol-

stice on the 21st of December; when the days are the shortest.

Q. Is not the Ecliptic divided?

A. The Ecliptic is divided into 12 equal parts, of 30 degrees each; called the 12 signs of the Zodiac.

Q. What are the names, characters, and order of these Signs?

A. The Signs are as follow—

Northern Signs.

Aries ♈ the Ram; *Taurus* ♉ the Bull; *Gemini* ♊ the Twins; *Cancer* ♋ the Crab-fish; *Leo* ♌ the Lion; *Virgo* ♍ the Virgin.

Southern Signs.

Libra ♎ the Balance; *Scorpio* ♏ the Scorpion; *Sagittarius* ♐ the Archer; *Capricornus* ♑ the Mountain-goat; *Aquarius* ♒ the Water-bearer; *Pisces* ♓ the Fishes.

Q. What are the *Colures?*

A. The Colures are two Meridians; one passing through the Equinoctial, and the other through the Solstitial point of the Ecliptic.

Q. What is the *Zenith?*

A. The Zenith is that point in the heavens directly over our heads.

Q. What is the *Nadir?*

A. The Nadir is that point directly opposite the Zenith; and, therefore, under our feet.

Q. What are the *Tropics?*

A. The Tropics are two circles, running parallel to the Equator, at the distance of 23½ degrees from it. That on the north is called the Tropic of Cancer; and that on the south, the Tropic of Capricorn.

Q. Describe the Arctic and Antarctic, or Polar Circles.

A. The Arctic Circle lies at the distance of 23½ degrees from the north pole, and the Antarctic, as far from the south pole.

Q. What are *Zones?*

A. Zones are five spaces into which the globe is supposed to be divided, by the Tropics and Polar Circles.

Q. Describe them.

A. The *Torrid Zone* is 47 degrees broad, lies between the Tropics, has the Equator passing through the middle of it, and is very hot.

The *Temperate Zones* lie between the Tropics and Polar Circles, are 43 degrees broad, and moderate, as to heat and cold.

The *Frigid Zones* extend from the Polar Circles to the Poles—are 23½ degrees broad, and excessively cold.

Q. What are Climates?

A. Climates are a sort of division of the earth, used by ancient geographers, to denote our approaching to, or receding from, the Equator. The northern and southern hemispheres contain each thirty climates; of which twenty-four, extending from the Equator to the Polar Circles, are termed *hour* climates, and the other six, *month* ones.

Q. What is Latitude?

A. Latitude is the distance of any place, north or south from the Equator. It never can exceed 90 degrees.

Q. What is Longitude?

A. Longitude is the distance of any place or meridian, east or west, from the first meridian. It can never, with propriety, go beyond 180 degrees.

The first meridian may be placed any where. But it is usually fixed at the metropolis of some country, as London, Paris, Washington, &c.

Q. How is the Land divided?

A. The Land is divided into four principal parts, or quarters; called Europe, Asia, Africa, and America: which are subdivided into empires, kingdoms, states, islands, peninsulas, isthmuses, and promontories or capes. These, together, contain about 800 million of people.

A *Continent* is a large extent of land, comprehending several regions or countries, without an entire separation of its parts by water.

An *Island* is a smaller portion of land, entirely surrounded by water.

A *Peninsula* is a tract of land encompassed by water, except at one narrow part, by which it joins the neighbouring Continent.

An *Isthmus* is a neck, or narrow part of land, which joins a Peninsula to the Continent.

A *Promontory* is a high point of land, stretching itself into the sea; the extremity of which is called a Cape or Promontory.

Q. How is the Water divided?

A. The Water is divided into Oceans, Seas, Lakes, Gulfs, Straits, and Bays or Creeks.

An *Ocean* is a vast collection of water, without any separation of its parts by land. The whole expanse of water encompassing the land, forms but one general Ocean; but it is generally divided into five parts; called, the Northern, Southern, Indian, Atlantic, and Pacific Oceans. More than two thirds of the whole surface of this globe are water.

A *Sea* is a smaller collection of water, which communicates with the Ocean, and is confined by land.

A *Lake* is a large collection of water, entirely surrounded by land.

A *Gulf*, or Bay, is a part of the Ocean, running up into the land; and surrounded by it, except at a narrow passage, by which it communicates with the Ocean: if a gulf be very large, it is called an *inland sea:* if very small, it is termed a *Creek.*

A *Strait* is a part of the Ocean restrained between two shores; and is the passage which joins one body of water to another.

Q. Have not these divisions of land and water some resemblance to each other?

A. Yes; a Continent is similar, in extent, to an Ocean; an Island, encompassed by water, resembles a Lake encompassed by land; a Peninsula of land, is like a Gulf or Inland Sea; an Isthmus, whereby two bodies of land are joined, resembles a Strait, which unites two bodies of

water; and a Promontory or Cape of land, is like a Bay or Creek of the sea.

Q. What is meant by the Old, and what by the New World?

A. The *Old World*, so called because long known, includes Europe, Asia, and Africa, and forms one large Continent; and North and South America, which form another Continent, are called the *New World*, because discovered so lately as the year 1492.

Q. What is understood by the *East*, and what by the *West Indies?*

A. The *East Indies* comprehends Hindoostan, and all the Asiatic islands, situated between the Indian and Pacific Oceans; and the *West Indies*, the islands in the Atlantic Ocean, between the Continents of North and South America.

OF EUROPE.

Europe, though the least extensive of the four quarters of the globe, is, in many respects, the most important; and that which, next to our own country, demands our particular attention. It is there, that the human mind is supposed to have been the most expanded; the arts and sciences most extensively cultivated, and the greatest variety of character, government, religion, and manners, exhibited.

Europe lies between 36 and 72 deg. N. lat. and 65 E. and 10 W. long. from London; is

3,000 miles long, and 2,500 broad, containing about 196 millions of inhabitants. It is bounded E. by Asia, W. by the Atlantic, N. by the Northern Ocean, and S. by the Mediterranean Sea, which divides it from Africa. The Christian religion prevails generally through Europe: there are, nevertheless, some Jews, and many Mahometans; and there is perhaps, no form of government which it does not embrace.

Europe comprehends the following empires, kingdoms, and states or republics; viz.—

		Population.	Chief Towns.	Population.
British Empire.	England,	11,262,000	London,	1,050,000
	Wales,	716,000	Wrexham,	19,000
	Scotland,	2,093,000	Edinburgh,	82,000
	Ireland,	6,500,000	Dublin,	183,000
Norway,		931,000	Bergen,	18,000
Sweden,		2,406,000	Stockholm,	74,000
Denmark,		1,566,000	Copenhagen,	106,000
Russia,		41,174,000	St. Petersburg,	286,000
Prussia,		9,903,000	Berlin,	183,000
Netherlands,		5,286,000	Amsterdam,	225,000
France,		41,174,000	Paris,	715,000
Kingdoms in Germany.	Saxony,	1,202,000	Dresden,	46,000
	Hanover,	1,304,000	Hanover,	25,000
	Bavaria,	3,561,000	Munich,	48,000
	Wirtemburg,	1,594,000	Stutgard,	24,000
Austria,		28,000,000	Vienna,	270,000
Switzerland,		1,751,000	Geneva,	22,000
Spain,		10,352,000	Madrid,	200,000
Portugal,		3,684,000	Lisbon,	240,000
States, Kingdoms, &c. in Italy.	Austrian Italy,	4,015,000	Milan,	135,000
			Venice,	160,000
	Kingdom of Sardinia,	3,995,000	Turin,	88,000
	Dutchy of Parma,	376,000	Parma,	30,000
	of Modena,	371,000	Modena,	22,000
	of Lucca,	139,000	Lucca,	18,000
	of Tuscany,	1,181,000	Florence,	76,000
	Pope's Territories,	2,347,000	Rome,	132,000
	Two Sicilies,	6,618,000	Naples,	333,000
Turkey,		9,660,000	Constantinople,	500,000

Other principal towns of Europe.

Bristol, Liverpool, Birmingham, Manchester, Glasgow, Aberdeen, Cork, Limerick, Oporto, Seville, Cadiz, Barcelona, Rouen, Nantz, Lyons, Bordeaux, Antwerp, Ghent, Hamburg, Frankfort, Prague, Venice, Presburgh, Elsinore, Bergen, Gottenberg, Upsal, Moscow, Archangel, Riga, Konigsburg, Warsaw, Dantzic, Cracow, Buda, Basil, Adrianople, Belgrade, Genoa.

The following are some of the principal rivers of Europe.

Volga, Danube, Don, Dneiper, Rhine, Dneister, Dwina, Dura, Memel, Mease, Oder, Elbe, Weser, Loire, Seine, Garonne, Douro, Tagus, Gaudiana, Gaudalquiver, Ebro, Rhone, Po, Tiber, Save, Drave, Bog, Bug, Inn, Pruth, Thames, Medway, Severn, Shannon, Liffy, Boyne, Forth, Tay, Tweed.

1st. *Islands in the Mediterranean.*

Islands.	Chief Towns.	Islands.	Chief Towns.
Ivica,	Ivica.	Candia,	Candia.
Majorca,	Palma.	Cyprus,*	Nicosia.
Minorca,	Citadella.	Negropont,	Negropont.
Corsica,	Bastia.	Lemnos,	Lemnos.
Sardinia,	Cagliari.	Scio,*	Scio.
Sicily,	Palermo.	Samos.*	
Malta,	Valetta.	Rhodes,*	Rhodes.
Corfu,	Corfu.	Mytilene.	
Cephalonia,	Cephalonia.	Nixia.	
Zant,	Zant.		

2d. *The Irish Sea, and British Channel.*

Jersey,	St. Heiler.	Anglesea,	Holyhead.
Guernsey.		Man.	
Wight,	Newport.		

3d. *On the North and West of Scotland.*

Orkneys,	Kirkwall.	Feroes.	
Hebrides,	Stornway.	Iceland,	Skalholt.
Shetlands,	Lerwick.		

The Europeans in general are well made, and tolerably fair, except in Spain, where they incline to be swarthy: the Spaniards and Hungarians wear whiskers, and the Turks, long beards.

Q. What are the commodities of these countries?

*These are Asiatic.

A. The commodities in the northern parts of Europe, are, pitch, tar, rosin, hemp, deals, masts, furs, iron, coal, and tin. In the middle parts,—corn, cider, hops, salt, lace, lawn, cambrick, woollen, and linen cloths, leather, clocks, watches, hardware, toys, paper, hats, gloves, and glass. In the south, are—wine, rice, raisins, oranges, lemons, cotton, marble, alum, amber, velvet, and mohair.

Q. What are the chief mountains?

A. The chief mountains are, the Dofrine hills, between Sweden and Norway; the Hyperboræan mountains, in Russia; the Cheviot hills, between England and Scotland; the Pyrenees, between Spain and France; the Alps, in Switzerland, the south of France, and north of Italy; and the Appennines, which run through Italy from north to south. Besides these, there are, Etna or Gibel, in Sicily; Vesuvius, near Naples; and Hecla, in Iceland; which are volcanic or burning mountains.

Q. What are the most noted rivers?

A. The most considerable rivers, as enumerated, folio 102, are,—the Danube, which runs through Germany, Hungary, and Turkey; the Rhine, Elbe, and Oder, in Germany; Loire, Rhone, and Seine, in France; Duero, and Tagus, in Portugal; Guadiana, Guadalquiver, and Ebro, in Spain; Tiber, and Po, in Italy; Volga, and Don, in Russia; Thames, and Severn, in England; Forth, and Tweed, in Scotland; and Shannon, and Liffey, in Ireland.

OF ASIA.

Q. How long and broad is Asia, and how is it bounded?

A. Asia is about 4700 miles long, and 4300 broad; and is supposed to contain about 500 million of people. It is bounded, on the east, by the Pacific ocean—west, by Europe, the Black, and Mediterranean seas—north, by the Frozen ocean—and south, by the Indian ocean—and south-west by the Red sea.

Q. What is it that makes the Geography of Asia particularly interesting?

A. We feel a particular interest in the Geography of Asia, because it was there, according to the sacred annals, that the Garden of Eden was planted, and our first parents, created; there, stood the famous tower of Babel, the magnificent temple of Solomon, and the renowned cities of Sodom, Gomorrah, Nineveh, Babylon, Troy, &c. In this country, our Saviour was born, and completed the great work of our redemption: in short, this was the theatre of almost every action recorded in the holy Scriptures.

Though Asia contains so vast a population, yet the great mass of its inhabitants, are, till this day, enveloped in Pagan darkness.

The principal divisions are as follow, viz.—

	Countries.	Chief Towns.
Tartary.	Russian	Tobolsk
	Chinese	Chynian
	Mogul	
	Independent	Samarcand
	China	Pekin
	Tonquin	Cachao
	Laos	Lanjan
	Cochinchina	Thonaoa
	Cambodia	Cambodia
	Siam	Siam
	Malacca	Malacca
	Pegu	Pegua, Unimerapoora
	Burmah	Ava
	Thibet	Lassa
	Assam	Chergong
India.	Hindoostan Pro.	Delhi, Calcutta
	Deccan	Hydrabad
	Mysore	Seringapatam
	Carnatic	Madras
	Persia	Schiras, Ispahan
	Arabia	Mecca
Turkey.	Syria	Aleppo
	Palestine	Jerusalem
	Natolia	Smyrna
	Diarbec	Diarbekar
	Irak Arabia	Bagdad
	Armenia	Erzerum
	Curdistan	Scherazor
	Georgia	Tefflis
	Circassia	

The following are some of the most extensive cities of Asia, with their population.

Pekin,	3,000,000	Calcutta,	650,000
Nankin,	2,000,000	Benares,	582,000
Canton,	1,500,000	Surat,	550,000
King-te-ching,	1,100,000	Meäco,	500,000
Hang-cheou,	1,000,000	Madras,	350,000
Lucknow,	300,000	Lahore,	170,000
Patna,	275,000	Cashmere,	160,000
Aleppo,	250,000	Delhi,	150,000
Pattan,	240,000	Cambay,	150,000
Bombay,	220,000	Moorshedabad,	150,000
Yang-cheou,	200,000	Smyrna,	150,000
Cabul,	200,000	Dacca,	150,000
Damascus,	200,000	Erzerum,	150,000
Ispahan,	200,000	Siam,	120,000
Ummerapoora,	175,000		

Jeddo, capital of Japan, is commonly considered as containing *one* million of inhabitants; but the Japanese say it contains *ten* times that number.

The Turks, Persians, Moguls, and Chinese, are of good shape and complexion. The people of India are tawny; but their features are pleasing. The Tartars, Chinese, and people of India, pull their beards up by the root.

Q. In what does the Trade of these nations consist?

A. The chief articles of Trade in the regions of Tartary, are sables, martins, furs, iron, rhubarb, musk, &c.: in other parts,—silk, cotton,

carpets, tapestry, and mohair; cinnamon, nutmegs, aloes, myrrh, camphire, and manna; coffee, tea, gold dust, quicksilver, diamonds, porcelain, and lacker; japan wares, &c.

Q. What are the islands of Asia?

A. The Islands of Asia are very numerous The principal one in size, is New Holland, surrounded by the Indian and the Pacific ocean;—the others, of the most note, are Borneo, Celebes, Sumatra, Java, and Ceylon, in the Indian ocean; Niphon, New Guinea, Formosa, Luconia, Mindanoa, in the Pacific ocean: and Cyprus, in the Levant or eastern part of the Mediterranean sea.

Q. Are there any remarkable mountains in this quarter?

A. The most remarkable mountains are, Ararat, near the Caspian sea, on which the ark rested after the flood; Horeb, and Sinai, in Arabia; Libanus, in Palestine; Imaus, in Tartary, Caucasus, between the Black and Caspian seas; and Taurus, running from east to west; through all Asia.

Q. What are the rivers of Asia?

A. The principal rivers of Asia are, the Tigris and Euphrates, between Arabia and Persia Tobal and Oby, in Tartary; Ganges and Indus, in India; and the Hoang-ho and Tay, in China.

On the north of China, runs a vast brick wall, supposed to be 1500 miles in length, from 20 to 25 or 30 feet high, and broad enough for six horsemen to travel abreast with ease: it was built before the commencement of the Christian era, and, even at this time, is little decayed.

OF AFRICA.

Q. Can you give the length, breadth, and boundaries of Africa?

A. Africa, in its greatest length from north to south, is about 4,300 miles; and its utmost breadth, 3,500. It is bounded on the E. by the Indian ocean,—on the W. by the Atlantic,—on the N. by the Mediterranean,—and on the S. by the S. Atlantic and the Southern ocean.

The southern extremity of Africa, is called the Cape of Good Hope. Africa is entirely surrounded by water, except at the Isthmus of Suez, about 120 miles over, between the Mediterranean and the Red sea.

Africa contains 11,044,000 square miles, and about 70,000,000 of inhabitants.

Q. What are the countries of Africa?

A. This quarter, except along the coast, is imperfectly known; but, according to the best accounts and conjectures, it may be divided as follows:—

N. AFRICA.

	Countries.	Chief Towns.
Barbary.	Morocco,	Morocco.
	Algiers,	Algiers.
	Tunis,	Tunis.
	Tripoli,	Tripoli.
	Barca,	Derne.
	Fezzan,	Mourzouk.
	Egypt,	Cairo.
	Tafilet,	Tafilet.
	Biled-el-gerid, or Land of Dates.	

W. AFRICA.

Countries.	Chief Towns.
Foulahs.	
Jaloffs.	
Dahomey,	Abomey.
Benin,	Benin.
Biafra,	Biafra.
Loango,	Loango.
Congo,	St. Salvador.
Angola.	
Benguela,	Benguela.

S. AFRICA.

Caffraria,	Latahoo, and Kurrechane.
Colony of Good Hope,	Cape Town.
Hottentots.	

E. AFRICA.

Inhambane, and Sabia.	
Sofola,	Sofola.
Mocaranga,	Zimbao.
Mozambique,	Mozambique.
Melinda,	Melinda.
Magadaxa.	
Ajan, and Adel.	
Abyssinia,	Gondar.
Nubia,	Sennaar.
Dongola.	

CENTRAL AFRICA.

Countries.	Chief Towns.
Zahara, or the Great Desert..	
Tombuctoo,	Tombuctoo.
Soudan.	
Darfur,	Cobbe.

In Egypt, Bilidulgerid, Zahara, and Abyssinia, the people are of a tawny complexion; but in all other parts they are quite black, have flat noses, thick lips, and woolly hair.

Q. What are the commodities of Africa?

A. The commodities in Barbary, Egypt, and Nubia, are rice, figs, raisins, oranges, lemons, citrons and almonds; pomegranates, olives, and senna; leather, civet, sugar, and indigo: in Nigritia and Guinea,—ostrich's feathers, gold dust, elephants' teeth, and pepper: in the south, along the coast,—ambergris, frankincense, musk, millet, pearls, gold, silver, &c.

But the persons of the natives make the most considerable article in the traffic on the Guinea or Western coast; where the Europeans and Americans, to the disgrace of humanity, and contrary to their own laws, purchase them, like so many cattle, carry them to the West Indies, or to the American continent, and sell them for slaves.

Q. What are the Islands of this quarter?

A. The only considerable Island in size, is Madagascar, in the Indian ocean; the others are all small. The most remarkable are St. Helena,

Ascension, St. Jago, St. Vincent, Mayo, Canary, Teneriffe, Ferro, and Madeira, in the Atlantic ocean.

Q. Are there any Mountains of note?

A. The principal Mountains are, Sierra Leone, or Lion Mountains, between Nigritia and Guinea; Atlas, between Barbary and Bilidulgerid, the Mountains of the Moon, between Abyssinia and Monomotapa; and the Peak of Teneriffe, which rises nearly three miles above the level of the sea.

Q. What are its Rivers?

A. The Rivers of Africa are neither numerous nor large, the Nile excepted: the most noted, are the Nile, in Nubia and Egypt; and the Niger, running through all Nigritia; of which, the Gambia and Senegal are branches.

Q. Give me some account of the Pyramids of Egypt?

A. The Pyramids of Egypt, near Cairo, are the most stupendous structures that ever were raised by the hands of men: the basis of the largest covers eleven acres of ground, and its perpendicular height is 500 feet; but if measured obliquely, 700 feet. Their antiquity is beyond the researches of history, and their original use, still unknown.

OF AMERICA.

Q. Give me some account of America.

A. The continent of America is composed of two great peninsulas, joined by a neck of land

about 60 miles over, called the Isthmus of Darien or Panama. These, taken together, extend from N. to S. about 8,000 miles, and are of very unequal breadth.

Q. When, and by whom, was America first discovered?

A. America was discovered in the year 1492, by Christopher Columbus, a native of Genoa: he left Palos, in Spain, on the 3d of August, with three small ships, fitted out for him by Isabella, queen of Castile; and, after a perilous voyage of 33 days, landed on one of the Bahama islands; where the astonished natives, simple, naked, timorous, and inoffensive, received and treated him and his companions as beings of a superior order, and of celestial origin.

Columbus afterwards visited several other islands, of the same group; and, in directing his course southerly, fell in with Cuba and Hispaniola; which he found, not only inhabited by a humane, hospitable people, but abounding in all the necessaries and comforts of life.

Q. Did Columbus ever return again to Spain?

A. Columbus returned to Spain, and was received with unbounded applause, and treated with the greatest respect. He visited America again several times, and extended his discoveries greatly to the emolument of the Spanish crown, but the ungrateful Ferdinand, after the death of his queen, Isabella, who had been the friend and patroness of Columbus, suffered him to waste the evening of his days, injured and oppressed. He

died at Valadolid, the capital of Castile, in the 59th year of his age, A. D. 1506.

Q. Whence does America take its name?

A. America takes its name from Amerigo Vespucci, a Florentine; who, among a multitude of other adventurers, was drawn from the shores of Europe to the new world, in quest of riches. He sailed to the southern continent, wrote a history of his voyage, and had the address, thereby, to give his name to half the globe.

Q. When, and by whom, was North America first discovered?

A. North America was first discovered in the year 1497, by Sebastian Cabot, a native of Bristol, England; when sailing on a voyage of discovery, in the employment of Henry VII.

Q. Did not the Spaniards early plant colonies in some of the West Indian islands?

A. The Spaniards planted colonies in several of the West Indian Islands, soon after their discovery; and, thence, by cunning, conquest, and cruelty, they, after a few years, established themselves in many extensive and fertile regions, both of North and South America.

Q. Who were the principal agents in these conquests and establishments?

A. The principal agents in the Spanish conquests and establishments in America, were Ferdinando Cortes and Francisco Pizarro, two monsters of cruelty, by whose instrumentality, vast multitudes of innocent natives perished in the flames, by the sword, and other means.

Cortes subdued the Mexicans between the

years 1518 and 1522; and Pizarro, about the year 1535, conquered Peru, and founded the city of Lima.

Q. Whence is it supposed that America was first peopled?

A. America is supposed to have been first peopled from the north-east part of Asia; but a what time is very uncertain: it must, however, have been many hundred years before Columbus's discovery; as, Mexico, Peru, and the West Indies, were all, at that time, very populous.

OF NORTH AMERICA.

Q. Give me the length, breadth, and boundaries of North America.

A. North America is nearly 5,000 miles long, and from 1,000 to 3,000 broad; bounded E. by the Atlantic; W. by the Pacific; N. by the Northern ocean; and S. by the Gulf of Mexico and South America.

Q. What are its grand divisions?

A. The grand divisions of North America, are—

1st. The British Colonies, on the N.

2d. The United States, in the middle; and

3d. Spanish America, on the S. W.; besides extensive regions of unexplored country, lying to the N. and N. W. of the United States, and inhabited by numerous tribes of Indians, of whom we know but little.

BRITISH COLONIES.

Colonies.		Chief Towns.
Newfoundland,	Islands.	Placentia.
Cape Breton,		Sydney.
St. Johns,		Charlotte Town.
Nova Scotia,		Halifax.
New Brunswick,		Fredericktown.
Lower Canada,		Quebec.
Upper Canada,		York.

New Britain, a sterile, cold country, including Hudson's Bay and Esquimaux, with New North and South Wales.

Quebec is situated on the St. Lawrence river, contains about 10,000 inhabitants, is the capital of all British America, and residence of the Governor General.

These countries are valuable, chiefly for their fisheries, fur, trade, and lumber.

UNITED STATES.

Q. What do you know of the history of that part of America, now called the United States?

A. The United States was originally an extensive wilderness, inhabited by numerous tribes of warlike Indians; and though it was known to the English as early as 1498, they were not able to effect any permanent settlement in any part of it till about the year 1607; when they succeeded in establishing a colony at James-town, in Virginia. Other settlements were afterwards

made, by emigrants from Europe, in different parts of this territory.

Q. Did not these infant colonies suffer considerably by the Indians?

A. Yes; many of the first settlers were entirely cut off by the Indians, and many perished by hunger.

Q. Can you proceed with this narrative?

A. Yes; and I observe, that in process of time, Great Britain, either by treaty or conquest, became mistress of the whole continent, from the frozen regions of the north, to the Gulf of Mexico on the south; and the colonies, chiefly composed of emigrants from her, grew in strength, wealth, and resources, with amazing rapidity.

Q. Did these colonies appear to feel any measure of attachment to Great Britain?

A. The attachment of the colonies to Great Britain was very great: they cheerfully fought her battles, submitted to her government, and received her laws; which, for a long time, were wise and equitable.

Q. Did any thing occur to interrupt this harmony and good understanding?

A. Yes: in the year 1765, the British parliament changed their measures towards the American colonies; and, attempting to raise a revenue from them, by oppressive taxes, and spurning their remonstrance and petitions for redress, lost their affections and their confidence, and roused them to resistance and opposition

Q. What measures were afterwards adopted by the Americans?

A. The Americans united for their mutual defence, chose deputies to represent them in congress, and to conduct their public affairs. These deputies first met at Philadelphia, in September, 1774. The breach continued to widen, a war ensued, and on the 19th of April, 1775, the first battle, between the American and British armies, was fought at Lexington, near Boston; and on the 4th of July, in the following year, the Congress, then sitting at Philadelphia, declared the United Colonies, then 13 in number, to be *free* and *independent* states.

Q. Of what does the Union now consist?

A. The Union now consists of 24 regularly organized and independent states, together with three extensive regions of country called Territories, out of which additional states will, no doubt, in time, be erected. These 24 states contain about - - - 796,000 square miles.

The Territories, 1,286,000

Total, 2,082,000 square miles.

Q. Who was commander in chief of the American armies during this war?

A. The commander in chief of the American armies, was George Washington, a native of Virginia.

Q. How long did this war last?

A. The war lasted about eight years; during which time, great valour and magnanimity were

displayed, and incredible sufferings endured, by the Americans.

Q. Who ultimately triumphed? and when was peace established?

A. The Americans at length gained their point; and peace was concluded in 1782: when Great Britain, after expending nearly 120 millions of money, and losing 50,000 men, relinquished all claim to the dominion of these states, and yielded, *reluctantly*, to their arms what she had long haughtily refused to their prayers.

Q. Did America receive any foreign aid in this struggle for liberty?

A. Yes; early in the contest, France acknowledged the independence of the United States, and lent them aid, both in money and men; and, afterwards, Holland also gave pecuniary assistance, and, as well as Spain, was arrayed in arms against Great Britain.

Q. Does the same confederation into which the states entered at the commencement of the war, still continue?

A. No: the original confederation was soon found to be inadequate to the purposes for which it was framed: delegates were appointed from the several states, to form a new constitution; which was drawn at Philadelphia, in 1787; and in 1789 it was organized, and still continues the supreme law of the land.

Q. What form of government was adopted in the United States?

A. The form of government adopted in the United States, was Republican: it is vested in a

President and two legislative branches, viz. a Senate and House of Representatives. All the individual state governments are also republican.

Q. How is the President appointed?

A. The President and Vice-President are chosen by electors, who are appointed by the people for that purpose. They continue in office four years, and may be re-elected as often as the people think proper.

Q. By whom are the Senators chosen?

A. Senators are chosen by the state Legislatures: two by each state; with a biennial rotation of one-third. Their term of office is six years.

Q. By whom are the House of Representatives chosen?

A. The House of Representatives are chosen by the people at large; one for every 58,000, and to serve two years.

Q. Who was the first President of the United States?

A. The first President of the United States was George Washington: he was twice unanimously elected to that office. Upon his declining a third election, he was succeeded by John Adams. After serving one term, he gave place to Thomas Jefferson; who, having served two terms, and declined a third election, was followed by James Madison, for eight years; and he, by James Monroe, who also served eight years; and was succeeded by John Quincy Adams, who, after serving four years, was succeeded by Andrew Jackson, our present chief magistrate.

Q. How are the United States bounded?

A. The United States and their territories are

bounded E. by the Atlantic and New Brunswick,—W. by the Pacific,—N. by Canada and the Lakes,—and S. by the Gulf of Mexico, and New Spain, or Mexico.

They embrace about 1400 miles of sea coast, on the Atlantic, and 500 on the Pacific, and extend in various breadths, from ocean to ocean, a distance of more than 3,000 geographical miles, and contain nearly 10½ millions of inhabitants.

Q. What is the military strength of the United States?

A. The military strength of the United States lies in a well disciplined militia, of about 900,000 freemen, with about 10,000 standing troops employed on the frontiers, and in the different fortresses of the Union. Its navy, established only for the protection of commerce, is yet in its infancy, and consists of

7 line of battle ships	of 74	guns each.
7 frigates	of 44	do.
3 do.	of 36	do.
2 do.	of 24	do.
13 sloops of war	of 18	do.
6 schooners	of 12	do.

14 of smaller size, as gallies, gun-boats, &c. 2 of 74 guns each, are laid up under cover; and 5 line of battle ships, and 4 frigates, are now building.

Q. What have you to observe respecting the soil and climate of this country?

A. The climates vary from *warm* to *very cold:* the soil has all the grades, from *worst* to *best;* and produces, or, by cultivation, may be

brought to produce, almost every species of grain, fruit, pulse, roots, and plants, found in the different parts of the world.

Q. What are the principal mountains?

A. The principal mountains in the United States, are the White mountains in New Hampshire;—the Alleghany mountains, which include a great number of ridges, under various names. extending from Hudson's river, in the state of New York, in a south-western direction, upwards of 900 miles; in various breadths, from 60 to 150 miles;—also the Stony and Californian mountains in the west.

Q. Describe the face of the country in the United States ?

A. Between the Alleghanies and the ocean, the face of the country is generally level; especially to the southward; but, west of the Alleghanies, it is finely diversified, well watered, and fertile. The eastern, or New England states, are elevated, rocky, and uneven.

On, and within, the northern boundary of the United States, is a chain of fresh water lakes; the largest, perhaps, in the world. Lake Erie is 300 miles long, and 40 broad—Ontario and Michigan, each, in circumference 600 miles—Huron, 1000 miles; and Superior, 1500. Between Lake Erie and Ontario, are the great falls of Niagara. The river is here 742 yards wide, and falls 137, or, as some say, 150 feet, perpendicularly, over a rock; affording a scene, at once the most awful, romantic, and interesting, that can be imagined.

The noise of this astonishing cataract, is heard to the distance of 20, 30, or even 40, miles; and a constant mist arises from it, in which, when the sun shines, may be seen all the colours of the rainbow. In the winter, this mist congeals on the neighbouring trees, and exhibits the most beautiful appearances.

There is, on the Mississippi, a pleasing cataract, called St. Anthony's Falls; where the whole river, 250 yards wide, descends, perpendicularly, more than 50 feet. Another remarkable cascade, named the Falling Spring, is seen on a branch of James's River, in Virginia; where the descent is at least 200 feet, perpendicular.

Q. Have the United States any considerable commerce?

A. Yes: the merchants of the United States trade extensively with almost every part of the commercial world.

Q. What are the principal articles of their trade?

A. The principal exports from the United States, are cotton, tobacco, flour, corn, rice, flax-seed, pitch, tar, lumber, potashes, salted fish, and oil. The imports consist, chiefly, of cloths, and hardwares; tea, coffee, sugar, spirits, and wines.

Q. What is the capital of the United States?

A. Washington, a flourishing city in the District of Columbia, on the Potomack, is the capital of the United States. Washington lies in 37 deg. 53 min. N. lat. is 139 miles S. W. from Philadelphia, and 40 from Baltimore, and may contain about 15,000 inhabitants. The population of the whole district may be estimated at 38,000.

States.	*Pop.* 1820.	*Pop.* 1830.	*Capital.*	*Chief Towns.*	*Inhab.* 1830.	*Principal Rivers.*
Maine,	297,839	399,462	Augusta,	Portland.	12,601	Penobscot, Kennebec, Saco.
New Hampshire,	244,155	269,533	Concord,	Portsmouth,	8,082	Piscataqua, Merrimack.
Vermont,	235,764	280,679	Montpelier,	Burlington,	3,526	Lamoiell, Onion.
Massachusetts,	521,752	610,014	Boston,	Boston,	61,392	Connecticut, Merrimack
Rhode Island,	83,059	97,210	Providence,	Providence,	16,832	Providence, Taunton.
Connecticut,	275,248	297,711	Hartford & N. Haven,	New-Haven,	10,180	Connecticut, Housatonick.
New York,	1,372,812	1,913,503	Albany,	New York,	203,007	Hudson, East River, Mohawk.
New Jersey,	277,575	320,779	Trenton,	Newark,	10,953	Raritan, Passaic, Hackensack.
Pennsylvania,	1,049,458	1,347,672	Harrisburg,	Philadelphia,	188,961	Delaware, Susquehanna, Alleghany.
Delaware,	72,749	76,739	Dover,	Wilmington,	6,628	Christiana, Brandywine.
Maryland,	407,350	446,913	Annapolis,	Baltimore,	80,625	Pocomoke, Choptank, and Potomac.
Virginia,	1,065,304	1,211,272	Richmond,	Richmond,	16,060	Rappahannock, York, James.
North Carolina,	638,829	738,470	Raleigh,	Newbern,	3,776	Roanoke, Pamlico, Neuse.
South Carolina,	502,758	581,458	Columbia,	Charleston,	30,289	Savannah, Pedee, Santee.
Georgia,	340,989	516,567	Milledgeville,	Savannah,	7,303	Ogachee, Altamaha, Oakmulgee.
Alabama,	143,000	308,997	Tuscaloosa,	Mobile,	3,194	Mobile, Tallapoosa, Cahawba.
Mississippi,	75,448	136,806	Jackson,	Natchez,	2,790	Mississippi, Yazoo, Pearl.
Louisiana,	153,407	215,575	New-Orleans,	New-Orleans,	40,310	Sabine, Washita, Red River.
Tennessee,	422,813	684,822	Nashville,	Nashville,	5,556	Tennessee, Cumberland, Holstein.
Kentucky,	564,317	688,844	Frankfort,	Louisville,	10,352	Ohio, Licking, Green.
Ohio,	581,434	937,679	Columbus,	Cincinnati,	24,831	Muskingum, Sciota, Great Miami.
Indiana,	147,178	341,582	Indianapolis,	New Albany,	2,500	Ohio, Wabash, White River.
Illinois,	55,211	157,575	Vandalia,	Kaskaskia,	600	Illinois, Kaskaskia, Little Wabash.
Missouri,	66,586	140,074	Jefferson City,	St. Louis,	5,852	Missouri, Osage.
Dist. of Columbia,	33,039	39,858	Washington City,	Washington,	18,827	Potomac.
Michigan Ter.	10,000	31,260	Detroit,	Detroit,	2,222	Grand River, St. Joseph, Raisin.
Arkansas Ter.	14,273	30,383	Little Rock,	Little Rock,	700	Red River, Arkansas, White River.
Florida, E. & W.	10,000	34,732	Tallahassee,	Mobile,	3,194	St. John's, St. Mary's.
Total	9,663,313	12,856,165				

MEXICO, IN NORTH AMERICA.

Q. How is Mexico bounded?

A. It was formerly a province of Spain, but is now independent, and divided into two States, Mexico and Central America.

They comprehend an extensive country, and lie between the territories of the United States, and the Gulf of Mexico on the E. and the Pacific on the W. stretching from the Isthmus of Darien on the South, to the 41st deg. of N. lat.

Q. What of the soil and climate?

A. The climate, in many parts, is insalubrious in summer, but mild and healthy in winter. The soil is, in the highest degree, productive.

INDEPENDENT STATES.

	Population.	Capital.	Population.
Mexico,	8,000,000	Mexico.	150,000
Central America,	2,000,000	Gautimala,	50,000

Q. What possessions has Russia in North America?

A. Russia claims the north-west section of North America, from Portlock harbour, round to Cape Prince of Wales, at Bhering's straits. This territory is valuable chiefly for its *fur trade.*

SOUTH AMERICA.

Q. What is South America?

A. South America is a vast peninsula, of a triangular form, nearly encompassed by the great South sea. It is upwards of 4000 miles long, by about 3000 broad, and is connected to North America by the isthmus of Darien.

Q. What of the mountains of South America?

A. The Andes, extending from north to south, the whole length of this continent, are the loftiest* and most extensive range of mountains upon the whole face of the globe, and embosom several volcanoes of the most sublime and terrific description.

Chimborazo, the most elevated point of the Andes, rises 21,500 feet above the level of the sea, which is more than 6000 feet higher than the summit of the celebrated Mont Blanc of Savoy.

Q. What are the principal Rivers of South America?

A. The principal Rivers of South America, are the Amazon, La Plata, Orinoko, Para, and St. Francis; with many others of less size and note. Amazon, 3000 miles long, of great width and depth, is the largest river in the world; and, the La Plata, upwards of 2000 miles long, and near the mouth, 150 broad, is little inferior to it.

Q. What of the soil and climate of South America?

A. So extensive a region must have a great

* Except the *Himmaleh Mountains*, on the north of Hindostan, the highest peak of which is said to be 28,000 feet above the level of the sea.

variety, both of soil and climate; but, it may be observed, in general, that the bountiful Creator has here bestowed liberally whatever is necessary for the comfort and convenience of man.

South America has long been celebrated for its rich mines of gold and silver. The whole population may be estimated at about 15 millions: some of the natives (the Patagonians) are of colossal stature.

Q. What are the principal divisions of South America?

A. South America is divided into the following

INDEPENDENT STATES.

	Population.	Capital.	Population.
Columbia, Venezuela,	3,000,000	Bogota,	50,000
		Caraccas,	30,000
Peru,	1,600,000	Lima,	60,000
Bolivia,	1,200,000	Chuquisaca,	30,000
Chili,	800,000	Santiago,	40,000
Buenos Ayres, Rep. Uraguay, Paraguay,	2,000,000	Buenos Ayres,	80,000
		Monte Video,	10,000
		Assumption,	12,000
Brazil,	4,000,000	Rio Janeiro,	150,000

Other Towns.

Carthagena, Panama, Quito, Truxillo, Cusco, Guamanga, Arequipa, La Plata, Potosi, Valparaiso, Santiago, Santa Fe, St. Salvador, Pernambuco, Cayenne, Demarara.

THE WEST INDIES.

Q. What is to be understood by the West Indies?

A. Under the general term, West Indies, are included a multitude of Islands, lying in several groups, between the two great continents of North and South America.

They belong to different European powers: several of them are of considerable size, and great commercial importance.

Q. What of the climate and seasons?

A. As the West India islands all lie within the torrid zone, they are oppressed with great heat, and have neither frost, snow, nor cold weather; the rains making the only distinction of seasons. Violent hail-storms, however, sometimes happen, and earthquakes are not uncommon.

Q. What are the principal articles of produce and exportation?

A. The principal articles of produce and exportation, are sugar, and coffee; cotton, rum, and molasses; ginger, pepper, allspice, cocoa, and fruits.

All the labour of cultivation is performed by the negroes, who compose more than seven-eighths of the whole population, which is about 2,400,000.

The principal islands, with their chief towns, are as follow, viz.

Islands.	Towns.	Inhabitants.	
Cuba,	Havana,	12,000	S.
Hayti, or	Cape Français,	8,000	
St. Domingo,	St. Domingo,	25,000	
Jamaica,	Spanish Town,	5,000	E.
	Kingston,	67,000	
Porto Rico,	Porto Rico,	- -	S.

Islands.	Towns.	
St. Thomas,	- - - - -	Da.
St. John,	- - - - -	Da.
Tortola, -	- - - - -	E.
St. Croix,	- - - - -	Da.
St. Eustatia,	Eustatia, - -	Du.
St. Christophers,	Bassetterre, - -	E.
Antigua,	St. Johns, - -	E.
Guadalope,	Bassetterre, - -	F.
Dominica,	Charlotte Town, -	E.
Martinique,	Fort Royal, St. Pierre,	F.
St. Lucia,	- - - -	F.
Barbadoes,	Bridge Town, - -	E.
St. Vincent,	Kingston, - -	E.
Grenada,	Port Royal, - -	E.
Tobago, -	- - - - -	E.
Curacoa, -	- - - - -	Du.

CHRONOLOGY.

Q. What is Chronology?

A. Chronology is the science of computing time, distinguishing its parts, and ascertaining the true period of events.

Q. What Chronology is most ancient?

A. The most ancient Chronology is that given by Moses, which fixes the creation of the world at 4004 years before the birth of Christ, and which, by adding the current year A. D. 1826, makes the world to have existed 5830 years.

The ancient Greeks computed time by Olympiads, or periods of 4 years; the Romans reckoned from the building of Rome, 752 years be-

fore Christ; and the Mahometans, from the Hegira, or flight of Mahomet to Mecca, in 622 of the Christian era.

Q. What is Time?

A. Time is the measure of duration; and is either absolute or relative. *Absolute* time, or *simple duration*, flows uniformly, from eternity to eternity; and has no regard to external objects. *Relative*, or *apparent time*, is that portion of duration, which is measured by the uniform motion of some sensible object; as the sun, the moon, clocks, watches, &c.

Thus, two persons, one in London, and the other in Philadelphia, observing an eclipse of the sun, may see it commence or terminate at the same moment of *absolute time;* while, in *relative time*, their clocks or watches will show a difference of five hours.

Q. What are the divisions of Time?

A. Time is divided into centuries, ages, years, months, weeks, days, hours, minutes, and seconds.

Q. What is the difference between an age and a century?

A. An *age*, is, properly, the space of time during which a man or generation of men, lives upon the earth; a century is 100 years: but *age* is often taken in a more extensive sense, and embraces several generations, or even centuries; as, from Adam to the deluge, is termed the first age of the world, &c.

Q. What is a Year?

A. A true solar Year is twelve months, or the

space of time in which the earth moves round the sun; or in which the sun completes his apparent revolution in the ecliptic. It consists of 365 days, 5 hours, 48 minutes, and 57 seconds.

Q. Of how many days does a common civil year consist?

A. A common or civil year consists of 365 days: but, as the odd hours, minutes, and seconds, of the solar year, amount, in four years, to nearly one whole day, every fourth year takes 366 days, and is called *leap year.*

Q. What is to be understood by *old* and *new style?*

A. The civil year, as settled by Julius Cæsar, contained 365 days and 6 hours; which was 11 minutes 3 seconds more than the true solar year. This excess caused the times of the equinoxes and other seasons of the year, to arrive one day earlier than they ought, in every 130 years. Thus, at the time of the Nicene Council, A. D. 325, the vernal equinox fell on the 21st of March; but, in A. D. 1582, it occurred 10 days earlier; hence, it was seen, that great confusion must attend the celebration of Easter, and other moveable feasts, which would at length fall on the same days.

This led Pope Gregory XIII. to think of reforming the style. He, accordingly, ordered the ten days that had been gained, to be stricken out of the year; which brought the vernal equinox again to the 21st of March. And to prevent a repetition of this inconvenience, Gregory further ordered, that only every fourth, termed

leap year, should have 366 days, and the others, 365.

This is called the Gregorian, or *new* style; and agrees so nearly with the true solar time, that 6000 years will not make the difference of one day.

Q. When was the new style adopted in Great Britain and America?

A. The new style was not adopted in Great Britain and America, till A. D. 1752; when 11 days, which had been gained, were taken from that year, by act of parliament.

Q. What is a month?

A. The month is *periodical*, *synodical*, or *civil*. A periodical month is the time in which the moon passes round the earth; namely, 27 days, 7 hours, and 43 minutes.

The *synodical* month, called a lunation, is the time which elapses from the moon's parting with the sun, at a conjunction, till her return to him again; which is 29 days, 12 hours, 44 minutes.

Civil months are the 12 kalendar months, into which the year is divided for the use and convenience of civil life.

They are of different lengths, and named as follow:—

1. *January;* from *Janus*, the most ancient king of Italy, who was deified by the people, and to whom they kept this month as sacred.

2. *February;* from *Februo*, to purify or cleanse by sacrifice. This was the last month of the year, in which purifications and sacrifices

were used among the ancient Romans, for the ghosts of the dead.

3. *March;* from *Mars*, the god of war; to whom this month was kept sacred.

4. *April;* from *aperio*, to open or unfold: because, in this month, nature begins to unfold all her beauties.

5. *May;* from the heathen goddess, *Maia*, to whom this month was held sacred.

6. *June;* from the heathen goddess, *Juno*.

7. *July;* in honour of *Julius* Cæsar.

8. *August;* in honour of *Augustus* Cæsar.

9. *September;* from the Latin *septem*, seven.*

10. *October;* from the Latin *octo*, eight.

11. *November;* from *novem*, nine.

12. *December;* from *decem*, ten.

Thirty days hath September,
April, June, and November;
February, twenty-eight alone,
All the rest have thirty-one.
But when you come to leap-year time,
Give to February full twenty-nine.

Q. What is a Week?

A. A Week is the succession of seven natural days; called Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday.

On Sunday, the ancient Saxons worshipped the Sun; on Monday, the Moon; on Tuesday, their idol, Tuisco; on Wednesday, Woden; on Thursday, Thor; on Friday, the goddess, Freia; and on Saturday, the idol, Seater.

* At this period of time, the year began with March.

On account of the derivation of these names of the months and days from heathen superstition and idolatry, the use of them is rejected by some religious denominations; who adopt in their stead, 1st month, 2d month, 3d month; and 1st day, 2d day, 3d day, &c. Others reject *Sunday*, only; and use *Sabbath*, or *Lord's day*, in its place.

Q. What is a Day?

A. A Day is either natural or artificial. The natural Day contains 24 hours; the artificial day is the time between the rising and setting of the sun.

Q. Do the different nations of the earth all begin the natural or civil day at the same time?

A. No; the Americans, British, French, Dutch, Germans, Spaniards, Portuguese, and Egyptians, begin at midnight; the ancient Greeks and Jews, commenced at sunset; as do now the modern Italians and Chinese; while the Persians, Syrians, and modern Greeks, count from sunrise; and astronomers from noon.

Q. Do all nations reckon the days in the same order?

A. No; the Christians count from the Sabbath, or Lord's day; in memory of the resurrection of their Saviour, Jesus Christ; the Jews from Saturday, and the Mahometans, from Friday.

Q. What is an Hour?

A. An Hour is the 24th part of a natural day. A minute is the 60th of an hour; and a second, the 60th of a minute.

Q. How many weeks are there in a year?

A. There are 52 weeks in a year, of 7 days each.

Q. What is an epoch, and what an era?

A. An *epoch* is the time at which a new computation is begun, and from which dates are numbered by historians; as, the creation of the world, the building of Rome, the birth of Christ, &c. An *era* is, properly, an account of time from one epoch to another; but it is often used as synonymous with epoch.

For example, we say,

Noah's flood happened A. M. (i. e. *Anno Mundi*, or in the year of the world) 1656.

Kings were expelled, and consular government established at Rome, A. U. C. (i. e. *ab urbe condita*, from the building of the city,) 244.

America was discovered by Columbus, A. D. (i. e. *Anno Domini*, in the year of our Lord) 1492.

Philadelphia was founded, A. D. 1683.

Independence was declared, July 4, 1776.

Q. What is an Olympiad?

A. An Olympiad is the space of four years; used by the ancient Greeks, to mark the time from the institution of the Olympic games;* which they celebrated at the beginning of every fifth year, in a plain near the town of Olympias.

Q. What is a *Lustrum?*

*These games were contests in running, wrestling, boxing, chariot races, &c. instituted by Hercules in honour of Jupiter, 744 years before Christ.

A. A Lustrum is a space of five years; used only by the Roman poets.

Q. What is an *Indiction?*

A. An Indiction is a revolution of fifteen years; used by the Romans, for indicting the time of certain payments made by the people to the republic.

Q. What is a *Jubilee?*

A. A Jubilee is a public festivity.

Q. What is a *Cycle* of the sun?

A. A Cycle of the sun is a period of twenty-eight years, in which time the days of the month return to the same days of the week; the sun's place, to the same signs and degrees of the ecliptic; and the commencement of the leap-years, to the same days of the week.

Q. What is a Cycle of the Moon.

A. A Cycle of the Moon is a revolution of nineteen years; in which time, the new moons, full moons, conjunctions, oppositions, &c. return to the same days of the month.

Q. Of what use are these Cycles?

A. By the revolution of the solar Cycle, is found the Dominical, or Sunday Letter: the year of the lunar Cycle is called the Golden Number; and from both, is determined the time of celebrating Easter.

Q. Have not the poets made another division of time?

A. Yes: Poets divide time into four ages:

1. The *golden age;* attributed to Saturn and Rhea; comprehending the earlier periods of the world, when men were more virtuous and happy.

2. The *silver age;* ascribed to the reign of Jupiter; extending to the time that tyrants appeared among the human race, aggrandizing themselves by oppression, violence, and injustice.

3. The *brazen age;* in which, rapacious men, possessed with the lust of dominion, endeavoured to reduce their brethren to a state of slavery.

4. The *iron age;* in which, every species of crime began, and which, they say, still continues.

Q. What are meant by the seasons of the year?

A. The seasons of the year are those changes and varieties which are produced in nature, by the revolution of the earth around the sun.

Q. What are the seasons called; and how long do they continue?

A. The seasons are called Spring, Summer, Autumn, and Winter; each continuing three months.

Q. When does each of these seasons begin?

A. *Spring* begins on the 21st of March; *Summer*, on the 21st of June; *Autumn*, on the 23d of September; and *Winter*, on the 21st of December.

Q. What are the Dog-days?

A. The Dog-days are the oppressively hot days which elapse between the 19th of July and the 28th of August. They have their name from the great *Dog star;* which is observed, during that time, to rise and set with the sun.

MYTHOLOGY.

Q. What is Mythology?

A. Mythology is the history and explication of the fabulous gods and heroes of the heathen world.

Q. Whence is the word Mythology derived?

A. The word Mythology is derived from the Greek words *muthos*, a fable, and *logos*, a description.

Q. Of what use is a knowledge of these fables?

A. A knowledge of Mythology enables us to read, with advantage, the ancient classic authors, to understand the allusions of the poets, and to explain the historic and fabulous representations often found in pictures, &c.

Q. How are the heathen gods divided?

A. The heathen gods are divided into six classes; the celestial, terrestrial, marine, infernal, subordinate, and demi-gods.

OF THE CELESTIAL DEITIES.

Q. Who are the Celestial Deities?

A. The gods of this class, are, Jupiter, Apollo, Mercury, Bacchus, and Mars; and the goddesses, Juno, Minerva, and Venus.

Q. Who was *Jupiter?*

A. Jupiter was the sovereign god of the heathens;* the son of Saturn and Ops, born in

* The heathens, in general, believed that there was only one supreme God: but, when they considered this one

Crete, at the same birth with Juno. He married his sister Juno, expelled his father out of his kingdom, and divided it with his brethren. He is represented, in poetic fiction, as having metamorphosed himself into a *swan*, for Leda—into a *bull*, for Europa—into a *shower of gold*, for Danaë—into a *shepherd*, for Mnemoysnè; and, thus, to have filled heaven with his natural children.

Q. How was the sovereign authority divided amongst the sons of Saturn?

A. Jupiter, as the eldest, had the heavens; Neptune, the waters; and Pluto, the infernal regions.

Q. Had Jupiter any children by Juno?

A. Jupiter had two sons, Vulcan and Mars, and a daughter named *Hebe;* whom, for her extraordinary beauty, he made goddess of youth. She was likewise his cupbearer, and poured out

great being as influencing the affairs of the world, they gave him as many different names; and hence proceeded their variety of nominal gods. When he thundered or lightened, they called him Jupiter; when he calmed the sea, Neptune; when he guided their councils, Minerva; and when he gave them strength in battle, Mars. In process of time, they used different representations of this Jupiter, Neptune, &c. and considered them, vulgarly at least, as so many different persons. Afterwards they regarded each in different views; according as they showered down blessings, or inflicted punishments. There was also one Jupiter for Europe, and another for Africa; and in Europe there was one great Jupiter who was the particular friend of the Athenians, and another who was the special protector of the Romans. There was scarcely a town in Italy that had not a Jupiter of its own. In this way, Jupiter had temples and different characters almost every where.

the nectar, the drink of the gods; which they called ambrosia.

Q. How is Jupiter represented?

A. Jupiter is generally painted as sitting with the fulmen, or thunder, or rather lightning, in one hand, and a sceptre and eagle in the other. Sometimes, an eagle is placed at his feet; that bird having the title of his armour-bearer; and when represented in a chariot, he is drawn by four horses.

Q. Who were the parents of *Apollo?*

A. Jupiter and Latona were the parents of Apollo: he was born in the island of Delos, at the same birth with Diana.

Q. What advanced Apollo among the gods?

A. Apollo was advanced among the gods, by the invention of physic, music, poetry, and rhetoric, which are ascribed to him; and, therefore, he is said to preside over the muses. He had a famous temple at Delphos; where his oracles were in great estimation.

Q. In what manner is Apollo distinguished?

A. Apollo is distinguished by the beauty of his face and the gracefulness of his figure; and by a laurel crown on his head, a bow and arrows in one hand, and a harp in the other.

Q. Does not Apollo sometimes mean the sun?

A. Apollo is sometimes used for the sun: he is also the god of light; and then, generally called *Phœbus.*

Q. Who was *Mercury?*

A. Mercury, the son of Jupiter and Maia, was the god of eloquence and commerce, the patron

of thieves, and the messenger of the gods. He conducted souls to their proper place, after their parting from the body.

Q. How is he represented?

A. Mercury is represented as a youth of extreme lightness and agility; but the most remarkable of his distinguishing attributes are his petasus, or winged cap; his talaria, or winged shoes; and his caduceus, or wand, with wings at the top, and bound by two serpents.

Q. What do you say of *Bacchus?*

A. Bacchus was the son of Jupiter and Semelè, and was the god of wine: he is represented as a jolly beardless youth, crowned with ivy and vine leaves; a spear wrapped with the same, in one hand, and grapes or a cup, in the other.—He is usually attended by Silenus, and a band of drunken Satyrs, nymphs, &c. and when carried in a chariot, he is drawn by lions and tigers, or by lynxes and panthers.

Q. Who was *Mars?*

A. Mars was the son of Jupiter and Juno; or, as Ovid tells the story, of Juno alone; who was displeased that Jupiter should have a daughter, (Minerva,) without female aid: being therefore a son of discontent, he was made the god of war and strife.

Q. How is he distinguished?

A. Mars is painted with a fierce and sour aspect; terror every where in his looks, clothed in armour, a helmet on his head, and a spear in his hand. When in a chariot, he is drawn by two horses; which are driven by his sister, *Bel-*

Iona, the goddess of war, who is represented as a distracted woman.

Q. What are the distinguishing characters of *Juno*, the sister and wife of Jupiter?

A. Being queen of the gods, and goddess of the air, Juno is represented as beautiful in a high degree, and full of majesty, having a sceptre in her hand, a crown of roses and lilies on her head, and her chariot drawn by peacocks. She is attended by *Iris*, her messenger, who, on account of her swiftness, is represented with wings, and as riding on a rainbow.

Q. Whence did *Minerva* proceed?

A. Minerva came forth from the brain of her father, Jupiter, completely armed; and is the only one of his offspring to whom pertain the prerogatives of the supreme rank of divinity. She is the goddess of wisdom and the arts, and the inventress and president of war.

Q. How is she represented by the poets and painters?

A. Minerva or Pallas, is distinguished by the dignity of her face, and a sternness, bordering on masculine; a helmet, with a plumed crest, on her head; a spear in her right hand, and in the other, a shield, with the head of Medusa upon it: the same figure appears also on her breast-plate: she is generally accompanied by a cock and an owl; as emblems of fighting and wisdom.

Q. Who was *Venus?*

A. Venus was the most beautiful of all the goddesses: she sprung from the froth of the sea, was educated by the Hours, and afterwards car-

ried by them into heaven; where, the gods found her so extremely handsome, that they were desirous of marrying her, and named her the goddess of love; but at last she was married to Vulcan, the ugliest and most deformed of all the gods.

Q. In what manner is Venus described?

A. The poets, painters, and statuaries, represent Venus in a variety of alluring forms; with her hair waving over her naked shoulders, or negligently tied behind, in golden tresses: with a mantle, exhibiting all the colours of the rainbow, and glittering with diamonds; sometimes flowing loosely, and at other times, bound with a girdle, called cestus.

Venus is accompanied by Cupid and the Graces, and followed by the beautiful Adonis; who holds up her train.—When riding in her chariot, (which is of ivory, carved and guilt,) she is drawn by swans, doves, or swallows.

Q. How, is *Cupid* represented?

A. Cupid, the god of love, appears as a naked boy, with wings, and bearing a quiver, bow, and darts; or a torch: though he is the youngest of all the gods, yet his power is deemed the strongest.

Q. Who are the *Graces?*

A. The Graces are three sisters; named Aglaia, Thalia, and Euphrosynè: they are represented naked, very beautiful, and with their hands connected.

OF THE TERRESTRIAL DEITIES.

Q. Who are the Terrestrial Deities?

A. The most celebrated Terrestrial Deities are, Saturn, Vulcan, Æolus, and Momus; Vesta, Cybelè, Ceres and the Muses: there are also others of note; which reside in the woods, and are properly called *gods of the woods.*

Q. Who is *Saturn?*

A. Saturn, the father of the gods, was the son of Uranus and Vesta, or Cœlum and Terra: his brothers were Titan, Oceanus, and many others; his sisters were Ceres and Cybelè (otherwise Ops, or Rhea,) whom he afterwards married. Being dethroned by his son, Jupiter, he took refuge in Italy; where he civilized the people, and introduced several parts of agriculture.

Q. How is he represented?

A. Saturn is represented under the figure of a decrepit old man, with a long beard, and hoary head; bearing in one hand a pruning hook, or scythe, and in the other a child, which he is about to devour. Sometimes, he is furnished with wings and an hour-glass: Saturn and time being the same, he is thus represented, to denote the swiftness of time, and that it destroys all things.

Q. What do you say of *Vulcan?*

A. Vulcan was the son of Jupiter and Juno, and the husband of Venus; as mentioned before. On account of his deformity, he was cast down from heaven, fell on the island Lemnos, and

broke his leg: there, he set up the trade of a smith, manufactured Jupiter's thunder, and the arms of the other gods; and taught the manifold uses of fire and iron. Vulcan is represented lame and deformed, blackened and hardened from the forge, and with a face red and fiery: sometimes, he is attended by the Cyclops, his servants and workmen; who have only one eye, which is placed in the middle of their foreheads.

Q. What is the province of *Æolus?*

A. Æolus is god of the winds: he is painted with swoln cheeks, like one who endeavours to blow a blast forcibly; also with wings on his shoulders, and with a high-coloured, fiery countenance.

Q. Who is *Momus?*

A. Momus is the god of folly; his name signifies a jester, mocker, or mimic; and that is his employment; for, when he finds the gods doing amiss, or neglecting their duty, he censures, mocks, and derides them, with great freedom. He is represented with a mask, and a grotesque face.

Q. Who was *Vesta?*

A. Vesta, or Terra, the wife of Cœlum, and mother of Saturn, is the oldest of the goddesses; and represented as sitting, and with a drum; because the earth is immoveable, and contains the boisterous winds in its bosom.

There was another Vesta, the daughter of Saturn, a virgin goddess: she is the same with Ignis, or fire.

Q. Who is *Cybelè;* and how is she represented?

A. Cybelè is the wife of Saturn, and mother of all the gods; and, being goddess of all things which the earth sustains, she is represented as seated in a chariot drawn by lions, having garments of various colours, and figured with the images of divers creatures: she holds a key in her hand, and wears a crown of turrets on her head.

Q. What is the office of her sister, *Ceres?*

A. Ceres is the goddess of corn and tillage; and is represented as tall and majestic, with yellow hair; on her head, a turban composed of ears of corn; in one hand, poppies and corn ears, and in the other, a lighted torch.

Q. Who are the *Muses?*

A. The Muses are nine beautiful virgins, the daughters of Jupiter and the nymph Mnemosynè, or Memory: they are mistresses of the sciences, and governesses of the festivals of the gods. Their habitation was mount Parnassus.

Q. What are their names, and the sciences over which they preside?

A. *Calliope* is the goddess of rhetoric; *Clio,* of history; *Erato,* of poetry; *Thalia,* of comedy; *Melpomenè,* of tragedy; *Terpsichore,* of dance; *Euterpè,* of music; *Polyhymnia,* of song; and *Urania,* of astronomy.

Q. Please to describe the *gods of the woods.*

A. The principal of the gods of the woods, and the manner in which they are represented, are as follow:

1. *Pan*, the god of shepherds and hunters, has a smiling ruddy face, a long beard, and two horns on his head: his skin is spotted, his thighs and legs covered with long hair, and he has the tail and feet of a goat; in one hand, he holds a crooked staff, and, in the other, a pipe of uneven reeds.

2. The *Satyrs* and *Fauns* are attendants on Pan; they are horned, and have the tail and legs of a goat.

3. *Sylvanus*, who presides over the woods, is an old man, of little stature, with the tail and feet of a goat; holding a branch of cypress in his hand.

4. *Silenus*, so called from a jocular temper, was the tutor of Bacchus, and his perpetual companion: he is represented as an old man, with a bald head, flat nose, large ears, a tail, and cloven feet.

5. *Diana*, the goddess of the woods, was twin sister to Apollo; and, as he is sometimes called Sol, the Sun, she is often called Luna, or the Moon.

Diana's delight is in hunting: accordingly, she is described as running, with a short vest, girded about her; yet flying back with the wind. She is tall; her face very handsome, yet somewhat manly; her attributes are, a javelin, or a bow, quiver and arrows.

6. *Flora*, the goddess of flowers, is represented as young and graceful; holding in her right hand, the blossom of beans and peas, and adorned with various flowers.

7. *Pomona*, the goddess of fruit, is an amiable

nymph. Her attributes are, a basket of fruit, a number of apples in her left hand, and, in her right, a nosegay of flowers.

8. The *Nymphs* are young and beautiful virgins who attend on superior, celestial, terrestrial, and marine deities. Those of the air, are called *Auræ;* of the woods, *Dryades;* of the mountains, *Oreades;* of the sea, *Nereïdes;* and of the rivers, or fountains, *Naiades.*

OF THE MARINE DEITIES.

Q. How is *Neptune*, the god of the sea, described?

A. Neptune is commonly represented standing, majestic and serene, with a trident in his right hand, a dolphin on his left, and treading on the back of a ship. When passing over the calm surface of the waters, he is in his chariot, —a large escallop-shell, drawn by sea-horses or dolphins,—and accompanied by his queen with numerous attendants.

Q. Whom did he marry?

A. Neptune married *Amphitritè*, the daughter of Nereus and Doris, parents of the Nereïdes.

Q. Who are his attendants?

A. The attendants of Neptune are, Triton, the Sirens, and the Nereïdes.

Q. Who was *Triton*, and how is he represented?

A. Triton was the son of Neptune and Amphitritè, and trumpeter to his father. He is represented as half man and half fish, terminating

in a dolphin's tail, and bearing in one hand a wreathed sea shell, which serves him for a trumpet, with which to convene the water deities, when Neptune wants their assistance or counsel.

Q. Please to describe the *Sirens?*

A. The Sirens are supposed to have been the three daughters of Achelous and Melphomenè, and are called Parthenopè, Lygea, and Leucosia. The ancients describe the Syrens with the faces of women, and the bodies of birds; but the moderns represent them as beautiful virgins, from the head to the middle; and downward, as fish, covered with scales. They are said to reside on rocks where vessels are in danger of splitting; and, alluring passengers by the sweetness of their melody, they put them to death. The Tritons and Sirens are sometimes called *mermen* and *mermaids.*

Q. How are the *Nereïdes* represented?

A. The Nereïdes are sea nymphs which compose the train of Amphitritè, and much resemble the modern Sirens, in their figure.

Q. What of the *Naiades?*

A. The Naiades are represented as the Sirens, half women and half fish; residing as so many domestics, in the palaces of the water gods: where they are said to work, tell stories, and wait at table.

OF THE INFERNAL DEITIES.

Q. In what manner is *Pluto,* god of the infernal regions, described by the poets and painters?

A. Pluto is represented as extremely black and ugly; with a key or a sceptre of two points in his hand, and a crown of ebony on his head.* When riding in his chariot, he is drawn by black horses.

Q. Who was *Proserpine?*

A. Proserpine was the daughter of Juno and Ceres; stolen by Pluto out of Sicily, and carried to his subterranean dominion: where, she became the partner of his empire.

Q. How is Pluto attended?

A. Pluto is attended by the Fates, the Furies, and the Judges; by Harpies, Gorgons, and other monsters; also by Charon, and the dog Cerberus.

Q. What are the *Fates?*

A. The Fates are three sisters; represented elderly, and clothed in white, bordered with purple: their names are, Clotho, Lachesis, and Atropos. To them, is intrusted, the management of the fatal thread of life: Clotho draws the thread, Lachesis turns the wheel, and Atropos cuts the thread when spun.

Q. Please to describe the *Furies?*

A. The principal of the Furies are three sisters; called Alecto, Tisiphonè, and Megæra: they are represented old and meagre, with pale cheeks, inflamed eyes, snakes on their heads, instead of hair, and whips or burning torches in their hands. Their office is to punish wicked

* This ugly immortal, finding no woman inclined voluntarily, to share his throne, had recourse to stratagem; and violently carried away Proserpine, daughter of Ceres, whilst amusing herself in gathering flowers.

men for their crimes, and to torment the consciences of secret offenders.

Q. Who are the *Judges?*

A. The Judges are Minos, Rhadamanthus, and Æacus; sons of Jupiter. Minos holds a golden sceptre, and oversees the judgment of the other two; each of whom holds a staff in his hand. When the souls of the dead have passed their tribunal, they are conveyed either to Elysium or Tartarus; the former, a place abounding in pleasures and delights, for the good; and the latter, a hideous dungeon, for the wicked.

Q. Who are the *Harpies?*

A. The Harpies are rapacious monsters; with the faces of women, the ears of bears, and the bodies of vultures. They were three sisters; Aello, Ocypetè, and Celeno.

Q. Describe the *Gorgons?*

A. The Gorgons also were three sisters; described with wings on their shoulders, serpents around their heads, and their teeth of a prodigious size. Their names were Stheno, Euryalè, and Medusa; the latter of whom was chief, and being mortal, was killed by Perseus. They could change into stone those upon whom they looked.

Q. Who was *Charon?*

A. Charon was a decrepit old man, with a long beard, yet of youthful vigour, but dirty in person and attire: his employment was to ferry souls over the rivers at the entrance of hell.

Q. What were those rivers?

A. The rivers at the entrance of hell were

four: *Acheron*, whose waters were extremely bitter; *Styx*, by which the gods were wont to swear; *Cocytus*, flowing out of Styx, with a horrible groaning noise; and the *Phlegethon*, swelling with waves of fire.—Besides these rivers at the entrance, there was another in Elysium, named *Lethè*, from the forgetfulness it caused; for, those who drank of its waters immediately forgot all past transactions.

Q. Is there any thing remarkable of the dog *Cerberus?*

A. The dog Cerberus had three heads, and his body was covered with snakes, instead of hair: he was stationed at the gates of Pluto's palace; and is sometimes called the *porter of hell.*

Q. What other deities are there in the infernal regions?

A. The other deities in the infernal regions, are, old *Erebus* and his wife *Nox*, who preside over darkness and night; *Mors*, who presides over death; and *Somnus*, over sleep: the last, by his servant, *Morpheus*, sends dreams to people in this world, while sleeping. *Plutus*, the god of riches, is generally deemed an infernal deity; as riches come out of the earth, and are the root of all evil.

OF THE SUBORDINATE DEITIES.

Q. Who are deemed subordinate deities?

A. The subordinate deities are those gods and goddesses who preside over kingdoms, provinces, cities, towns, streets, houses, &c. and over in-

fants, children, young people, and adult persons. Their number is all but infinite; there being almost as many gods as there are things.

OF THE DEMI-GODS.

Q. What do you say of the Demi-Gods?

A. The Demi-Gods and Heroes, were those who had human bodies, sacred minds, and celestial souls. They were the offspring of a god or goddess, with a mortal. The principal of these were, Hercules, Jason, Theseus, Castor and Pollux, Perseus, Æsculapius, Prometheus, Atlas, Orpheus, Achilles, Ulysses, Orion, Osiris.

Q. Who was Hercules?

A Hercules was the son of Jupiter by Alcmena. He was destined by the malignity of Juno, and the fatality of his birth, to dangerous wars and difficult adventures, through the whole course of his life.

Q. What are his principal exploits?

A. The principal exploits of Hercules are termed his twelve labours, and are the following:

1. Whilst a child in his cradle, he strangled two serpents, which Juno had sent to destroy him.

2. He slew, in the forest of Lerna, a frightful Hydra, with 50 heads; one of which being cut off, another immediately sprung up in its place.

3. He caught and killed, on mount Menalus, an extremely swift hind, with golden horns.

4. He overcame Diomedes, king of Thrace, who fed his horses with the flesh of his guests.

5. He took, on mount Erimanthus, in Arcadia, a wild boar, that had spread destruction around the country; and dragged it, alive, to Euristheus.

6. He tamed a mad bull, which had desolated Crete.

7. He conquered, upon the banks of Tarseus, a giant with three bodies, and of immense stature.

8. He separated two mountains, Calpè and Abila, which were before united; and between which, are the present straits of Gibraltar.

9. He carried away the golden apples from the gardens of the Hesperides, after killing the dragon that watched them.

10. He suffocated the giant Antæus, in a contest at wrestling.

11. To ease Atlas, he took the heavens upon his shoulders.

12. He conquered, in the woods of Nemæa, a lion of immense size, and clothed himself with the skin.

Q. What ultimately became of Hercules?

A. Hercules having slain the Centaur, Nessus, (a huge being, half man and half horse,) the dying monster gave to Dejanira, Hercules' wife, a garment dipped in his own blood, as a preservative for love. This, she sent to Hercules; who had no sooner put it on, than he was seized with violent and incurable pains. He raised a funeral pile on mount Oëta, set fire to it with his own hands, and closed his life in the most dreadful agonies.

Q. Who was Jason, and what is his story?

A. Jason was the son of Æson and Alcimedè. At the persuasion of his tutor, Pelias, he undertook the Argonautic expedition to Colchis, for the golden fleece, which he carried away.

This fleece was the hide of a golden coloured ram; which was guarded in the grove of Mars, by huge bulls, breathing fire from their nostrils, and by a vast watchful dragon.

Q. Who was Theseus?

A. Theseus was the son of Ægeus, king of Athens, and killed the Minotaur, a monster with a bull's head, and a man's body, legs, &c.

Q. Who were Castor and Pollux?

A. Castor and Pollux were the sons of Jupiter, by Leda. They shared immortality by turns.

Q. What of Perseus?

A. Perseus was the son of Jupiter and Danaë. He had the wings of Mercury, the shield of Minerva, the helmet of Pluto, and a sword forged by Vulcan; and, thus armed, he cut off the head of Medusa, chief of the Gorgons.

Q. Who was Æsculapius?

A. Æsculapius was the god of Physic.

Q. Who was Prometheus?

A. Prometheus was the son of Japetus. He animated a man whom he had formed of clay, with fire, which, by the assistance of Minerva, he stole from heaven; and for which he was chained, by Jupiter, to mount Caucasus, with a vulture continually preying on his liver.

Q. Who was Achilles?

A. Achilles was the son of Thetis, goddess of the sea. His mother dipped him in the Styx,

and thereby rendered him invulnerable, all but the heel, by which she held him. He was slain by Paris, who shot him in the heel, at the siege of Troy.

Q. Who was this Paris?

A. Paris was the son of Priam, king of Troy, by Hecuba. Juno, Venus, and Minerva being present at the wedding of Thetis and Peleus, the goddess Discord, threw into the assembly, a golden apple, with this inscription: "To the fairest." Each of the three claimed the apple; but, at length, referred the decision to Paris, then feeding his flocks upon mount Ida. He gave judgment in favour of Venus. Paris is memorable also for having carried off Helena, wife of Menelaus, king of Mycenæ; which event occasioned the famous siege of Troy.

Q. What is said of Atlas?

A. Atlas, the son of Uranus, was a great observer of the stars, and the first who represented the world by a sphere.

Q. What is recorded of Ulysses?

A. It is said of Ulysses, that, on his return from the Trojan war to the island of Ithica, of which he was king, the Syrens endeavoured to stop him; but, that he might not be allured by their melody, he closed his ears and caused himself to be tied to the mast.

Q. What is the story of his wife Penelopè?

A. Besieged by a numerous train of lovers in her husband's absence, Penelopè delivered herself by artifice. Having, to satisfy them, promised to make choice of one of them, as soon as a

piece of tapestry, on which she was at work, should be finished, she took care to unweave, at night, all that she had done the preceding day.

Q. Who was Orpheus?

A. Orpheus was the son of Jupiter and Calliopè. He had great skill in music, and took an unconquerable dislike to female society, after the death of his wife Eurydicè.

Q. What of Orion?—and Osiris?

A. Orion was a mighty hunter, and a celebrated giant of antiquity: Osiris, called also Apis, and Serapis, was the first who taught the Egyptians to sow corn and plant vines. After his death, they worshipped him in the form of an ox, as a symbol of husbandry.

Besides the gods and goddesses belonging to the several classes already mentioned, many of the virtues and vices had their peculiar deities.

HISTORY.

Q. What is History?

A. History is a written narrative of past transactions, in regular succession.

Q. Is not an acquaintance with History, then, very desirable?

A. A familiar acquaintance with History is a most valuable attainment, and well worthy the attention of all who wish to have their minds enriched from the treasures of experience. As *necessity* has proved herself the mother of invention; so, *experience* will always be acknowledged the parent of wisdom.

History, therefore, being an account of what has occurred in real life, and causing all the transactions which it relates to pass, in review, before the mind of the reader, gives him, in a sort, the experience of them; and yields him the wisdom of age, even in the morning of life.

Q. How is History divided?

A. History is divided into ancient and modern: which may be subdivided into civil, sacred, and profane.

Q. What is Ancient History?

A. Ancient History is an account of all events, whether recorded by sacred or profane writers, from the creation of the world to the birth of Christ; or, more generally, to the time of Charlemagne, in the eighth century.

Q. What is Modern History?

A. Modern History is a relation of whatever has occurred either in church or state, from the latter period to the present time.

Q. What is to be understood by Civil History?

A. Civil History is the history of nations, and has relation to the establishment, civil policy, continuance, fall, &c. of empires, kingdoms, states, communities, or cities; and may be either general or particular. Particular History recites a series of facts, forming the history of an individual state; General History exhibits, at one view, a distinct account of several states, empires, &c.

Q. *What is Sacred History?*

A. Sacred History is that part, both of ancient and modern History, which lays before us the

mysteries and ceremonies of religion, with the visions, prophecies, miracles, and other supernatural things recorded in the Old and New Testaments, and of which GOD alone is the author.

Q. Do we not sometimes hear of *Ecclesiastical* or *Church History?*

A. Yes; Sacred History, since the destruction of Jerusalem, or about the 70th year after the birth of Christ, is, very properly, so termed; as it is a narration of transactions, revolutions, and events, which particularly relate to the Christian church.

Q. What is Profane History?

A. Profane History is, properly, the history of the fabulous gods, demi-gods, and heroes of antiquity, usually termed *mythology;* but all records of ancient times, the scriptures excepted, are, sometimes, thus denominated.

Q. How may Civil History, or the history of nations, be divided, with regard to time?

A. Civil History, or the history of nations, may be divided, with regard to time, into three great intervals.

1. *Obscure, or uncertain time;* extending from the creation of the world to the deluge. This period embraces 1656 years, and is called *obscure,* because history has left us in great ignorance with respect to it.

2. *Fabulous, or heroical time;* extending from the deluge to the establishment of the Olympic games. It is called *fabulous,* or *heroical,* because it is perplexed with the fables of

the gods, demi-gods, and heroes of the Greeks; who are said to have lived during this period.

3. *Historical time*, extending from the establishment of the Olympic games, when history began to be more authentic, down to the present period.

Q. How may Sacred History be divided?

A. Sacred History may be divided into three parts:—

1. The *dispensation of the law of nature;* extending from Adam to Moses.

2. The *dispensation of the written law;* extending from Moses to the preaching of the gospel by our Lord Jesus Christ and his apostles.

3. The *dispensation of grace;* extending from the establishment of the gospel to the present time.

Q. What is the most ancient History we have?

A. The most ancient History is that which is contained in the Old Testament; giving an account of the creation of the world, the fall of our first parents, the general corruptions of mankind, and the universal deluge which came upon the earth, in consequence; the preservation of Noah with his family in the ark, and the repeopling of the world by his three sons, Shem, Ham, and Japheth; and of their posterity.

Q. What else is recorded in the Scriptures?

A. The Scriptures record the history of the Jews or Hebrews, once the favourite people of Heaven, in the Old Testament; and the history of our Lord Jesus Christ, the Son of God, and his disciples, in the New.

Q. Does not Ancient History recognize the existence of certain extensive monarchies or empires?

A. Ancient History recognizes four extensive monarchies or empires; termed *universal;* because they extended over the greatest part of the then known world.

Q. What was the first of these?

A. The first of these was the *Assyrian* empire; founded at Babylon, on the Euphrates, by Nimrod, the grandson of Ham, A. M. 1800; and continued by his son Ninus, and after Ninus, by his wife Semiramis, and terminated under Sardanapalus, having endured 1450 years.

Q. What became of the empire after the death of Sardanapalus?

A. After the death of Sardanapalus, the Assyrian empire was divided into three kingdoms; the kingdom of Media, the kingdom of Assyria, and the kingdom of Babylon. Arbaces, who subdued Sardanapalus, was the first king of the Median kingdom, and Ecbatana was his capital. Phul was the first king of the Assyrian kingdom, and his metropolis was Nineveh. Babylon was the metropolis of the Babylonian kingdom. Nebuchadnezzar was the most celebrated of its kings, and Belshazzar the last.

Q. What was the second universal monarchy? and by whom founded?

A. The second universal monarchy was the *Persian;* founded by Cyrus, upon the ruins of the Median and Babylonian kingdoms, in the year of the world 3468; and ended with the

overthrow of Darius, its last king, by Alexander the Great, A. M. 3670, and before Christ 330: having endured something more than 200 years.

Q. Who was this Cyrus?

A. Cyrus was a prince of extraordinary virtue, wisdom, and courage; and is renowned in Holy Writ, for having effected the restoration of the Israelites from the Babylonish captivity, to Judea, their native land, with permission also to rebuild the temple at Jerusalem.

Q. What was the third universal monarchy, and by whom founded?

A. The third universal monarchy was the *Grecian;* founded 330 years before Christ, by Alexander the Great. It lasted, however, no longer than the life of its founder; for, at his death, as there was no proper successor, his generals divided the empire among themselves, forming four distinct kingdoms; the Macedonian, the Asiatic, the Syrian, and the Egyptian. These subsisted under their own kings, until they were subdued by the Romans.

Q. Why was Alexander called the *Great?*

A. Alexander was called the Great, not on account of his virtues, but on account of his natural valour, and the great success of his arms; which, in the short period of 12 years, subjugated all the nations, from the Adriatic sea, (now the gulf of Venice) to the river Ganges in India.

Q. What was the character of Alexander?

A. Alexander was of an active, vigorous constitution, possessing strong intellectual powers, an aspiring, impetuous disposition, and was very

tenacious of his opinions. Under the tuition of the celebrated Aristotle, he made astonishing progress in every branch of science, to which it was thought proper to direct his attention; so that he soon became both a scholar and a philosopher.

Alexander, in the early parts of life, gave strong evidence of a noble, virtuous, and generous disposition; but, cruelty, ingratitude, and dissipation, disgraced the close of his days, and tarnished all his glory. He died at Babylon, of excessive drinking, in the 32d year of his age, and the 13th of his reign.

Q. What was the fourth universal monarchy?

A. The fourth universal monarchy was the *Roman;* founded by Romulus, B. C. 753, and, with some changes, continued, until under Augustus Cæsar, it became mistress of the whole earth, excepting China, and some other countries, that were either unknown, inhabited by savage nations, or too inconsiderable to attract regard.

Q. What changes did the Roman government undergo?

A. The first state of Rome was *regal*, under seven successive kings: the second was *consular*, under a series of consuls, for the space of 470 years; when the triumvirate was formed, by Julius Cæsar, Pompey, and Crassus, who divided the empire amongst them. Crassus having lost his life in a foreign expedition, Cæsar and Pompey became jealous of each other's power, and a war ensued, in which Cæsar ultimately triumphed. He styled himself perpetual dictator;

and was about to take upon him the imperial dignity, when he was assassinated for his usurpation, by a band of Roman citizens, with Brutus and Cassius at their head.

Q. Did the republic recover its liberty after the death of Cæsar?

A. No: Mark Antony, a factious, dissolute character, with young Octavius, the nephew of Julius Cæsar, and Lepidus, who commanded an army in Gaul, formed a second triumvirate; and having the soldiery at command, they cruelly banished, or put to death, all who were either wealthy or virtuous, at Rome: Octavius assumed the name of Augustus Cæsar, and the liberties of the people perished, 27 years before Christ.

Q. Was this triumvirate of long standing?

A. No; Antony, by divorcing Octavia, the sister of Cæsar, and attaching himself to Cleopatra, queen of Egypt, drew himself into a war, in which he and Cleopatra both perished; and Egypt, from that time, became a Roman province. Augustus, now finding himself supreme governor of the Roman people, assumed the imperial dignity; and, under the title of emperor Augustus, governed with great wisdom and moderation for 44 years.

It was in the reign of this prince, when all the world was at peace, that our Saviour, Jesus Christ, the true Prince of Peace, was born, at Bethlehem of Judea. Rome was at this time 50 miles in circumference, and contained four millions of inhabitants.

Q. How long did this empire continue, after the birth of Christ?

A. The Roman empire continued four hundred and seventy-six years after the birth of Christ, when Augustulus, the last emperor, was defeated by Odoacer, general of the Heruli.

From that time, the Roman empire became a prey to the Goths, Lombards, and Franks; by whom, were established various petty governments, in France, Spain, and Italy: some remains of which still exist.

Q. What effects followed the inroads of these barbarians?

A. The inroads of these barbarians, caused a temporary destruction of the fine arts, and so great an obscuration of the sun of science and literature, as occasioned the long succeeding period of nearly 1000 years, to be called the *dark age.*

Printing was at length invented, learning revived, and greater progress was made in civilization than at any other period of history.

Q. When, and by whom, was the foundation of the present French empire laid?

A. The foundation of the present French empire was founded about the year A. D. 481, by the Francs, a German nation, under Clovis whose posterity sat upon the throne 270 years. The second race began under Pepin, A. D. 751, and was followed by the Capetian race, so called from *Hugh Capet*, a powerful nobleman who ascended the throne, A. D. 987. This family was succeeded by the house of Valois: and the house

of Valois, by that of Bourbon. The execution of Louis XVI. in 1793, seemed to have ended this dynasty: France was, thence, governed as a republic, until 1804; when general Napoleon Buonaparte, a native of Corsica, was made emperor. But Napoleon was finally dethroned in 1815; at which period, Louis the XVIII., a brother of the unfortunate Bourbon, was, a second time, placed upon the throne, by the allied enemies of Buonaparte.

Q. What races of kings have succeeded to the Spanish crown?

A. Spain has been governed since the expulsion of the Romans, by five families; the first race from the Goths; the second, from *Don Pelago;* the third, from *Don Sancho,* king of Navarre; the fourth, from the house of Austria; and the fifth, from the house of *Bourbon.*

Q. Of what family, is the emperor of Germany?

A. The emperor of Germany is a descendant of Rodolph I., count of Hapsburg, and Landgrave of Alsace; who was the first of his family that obtained the empire. He was elected A. D. 1273.

Q. Of what family, is the emperor of Turkey?

A. The emperor of Turkey is of the Ottoman family; so called, from the warlike Sultan Othman, or Osman, who A. D. 1300, carried his conquests to a prodigious extent.

Q. At what period, and by what means, did Portugal become a kingdom?

A. Portugal, anciently called Lusitania, became a kingdom about the middle of the twelfth

century. Count Henry, receiving some territories bordering upon it, from Alonzo, king of Leon, as a marriage dowry with his daughter, expelled the Saracens; and his son, Alonzo, having conquered Lisbon, assumed the title of king of Portugal, A. D. 1146. Philip II. of Spain, seized upon it in 1589; but, in 1640, the duke of Braganza recovered it; and, in his family it has ever since remained independent of Spain.

Q. What was the former situation of Holland, or the United Provinces, now comprised in the kingdom of the Netherlands?

A. Holland, or the United Provinces, were originally an assemblage of lordships, dependent on Spain; but from which they withdrew, on account of the tyranny of the government, in the reign of Philip II.

Spain, after a tedious war, acknowledged their independence, in the year 1609. They afterwards established a republican form of government, and made the executive power hereditary in the family of the prince of Orange, with the title of Stadtholder.

The French expelled this prince in 1795, erected it into a monarchy, under Lewis Buonaparte, 1806, and incorporated it with their empire, 1810. After the defeat of Napoleon, at Leipsic, in 1813, the Stadtholder resumed the government, and now reigns there, as king of the Netherlands.

Q. What are the present divisions of Italy?

A. Italy is now divided into Austrian Italy, the

kingdom of Sardinia, the Dutchies of Parma, Modena, Lucca, and Tuscany; the Pope's Territories, and the Two Sicilies.

Q. Give me a short account of England?

A. Before the Romans landed in England, the Britons, who then possessed the country, were divided into several nations; each governed by its own king. When Britain became a member of the Roman empire, many of their tribes had their own kings, who were suffered to govern, as tributary sovereigns, by their own laws.

After the Romans had quitted Britain; upon the irruption of the Goths into Italy, in the fifth century, the supreme government returned to the Britons; who chose for their king, Constantine, a prince of British blood; to whom, succeeded Constantine, his son; then Vortigern, who first called in the Saxons, at that time hovering along the coast of Britain.

The Saxons, having got footing in the island, either enslaved or extirpated those whom they came to assist.

Thus, the Britons left the stage, and the Saxons entered. By these, the country was divided into seven kingdoms, called the Saxon Heptarchy; which continued for several ages, till the prevailing fortune of the West Saxons united them all into one, by the name of England.

Q. How many kings of the Saxon line succeeded to the crown of England?

A. Fifteen kings of the Saxon line succeeded to the English crown, namely—

Egbert, 17th king of the West Saxons, and

19th monarch of Britain, was crowned at Winchester, in the year 819, first king of England; he died in 836; and was succeeded by his son:

ETHELWOLF, died 857, and was succeeded by his son,—

ETHELBALD, died 860, and was succeeded by his brother,—

ETHELBERT, died 866, and was succeeded by his brother,—

ETHELRED I. who received a wound in battle, of which he died in 872, and was succeeded by his brother,—

ALFRED, died 901, and was succeeded by his son,—

EDWARD, the elder, died 924, and was succeeded by his son,—

ATHELSTAN, died 940, and was succeeded by his brother,—

EDMUND I. who received a wound, when endeavouring to part two of his servants; of which, he bled to death, 948, and was succeeded by his brother,—

EDRED, died 955, and was succeeded by his nephew,—

EDWY, eldest son of Edmund I. died of grief, in 959, and was succeeded by his brother,—

EDGAR, died 975, and was succeeded by his eldest son,—

EDWARD, the martyr, who being stabbed by order of his mother-in-law, 979, was succeeded by his half-brother,—

ETHELRED II. died 1016, and was succeeded by his son,—

EDMUND II. murdered 1017, and was succeeded by a Dane.

Q. How many kings of the Danish line succeeded?

A. Three kings of the Danish line succeeded, namely—

CANUTE, the Dane, descended from the daughter of Edward the elder, died 1036, and was succeeded by his son,—

HAROLD I. died 1039, and was succeeded by his brother,—

HARDICANUTE, who died 1041, and was succeeded by

EDWARD, the Confessor, son of Ethelred II. (of the Saxon line) who died Jan. 1066, and was succeeded by

HAROLD II. son of the earl of Kent, slain in battle October 14, 1066; and was succeeded by William the Conqueror.

Q. .Name the succession of English monarchs, from William the Conqueror, down to the present time.

A. The succession of English monarchs, from William the Conqueror, down to the present time, are the following:

1st. Four Norman kings; *William* of Normandy; *William Rufus; Henry* I. and *Stephen.*

2d. Fourteen kings of the family of Plantagenet—

Henry II. *Richard* I. *John; Henry* III. *Edward* I. *Edward* II. *Edward* III. *Richard* II.

Henry IV. *Henry* V. *Henry* VI. *Edward* IV. *Edward* V. *Richard* III.

3d. Five of the house of Tudor—

Henry VII. *Henry* VIII. *Edward* VI. *Mary*, and *Elizabeth.*

4th. Six, of the house of Stuart—

James I. *Charles* I. *Charles* II. *James* II. *Mary* II., queen of William III.; *Anne.*

5th. One king of the house of Nassau—*William* III.

6. Four kings of the Brunswick line—which succeeded upon the death of *Anne*—*George* I., *George* II., *George* III., *George* IV.

Q. Please to repeat these a little more in detail?

A. WILLIAM I., duke of Normandy, was a descendant from Canute; he made a claim to the crown of England, and landed in Sussex, in September, 1066; defeated the English troops at Hastings, October, following, when Harold was slain, and William assumed the title of Conqueror. He was crowned at Westminster, in December, 1066; wounded, by his son Robert, in Normandy, 1077: his queen, Matilda, was a descendant from Alfred, and died in Normandy. William died at Hermentrude, in Normandy, September, 1087; was buried at Caen, and succeeded, in Normandy, by his eldest son, Robert; and in England, by his second surviving son,

WILLIAM II., who was crowned September 27, 1087—invaded Normandy with success—was killed by accident as he was hunting in New Forest, by Sir Walter Tyrrel, August 2d, 1100.

He was buried at Winchester, and succeeded by his brother,

Henry I., who was crowned August, 1100; married Matilda, daughter of Malcolm, king of Scots, November, following—defeated his brother Robert, in Normandy, 1107, and sent him prisoner to England—his eldest son was shipwrecked and lost in coming from Normandy, 1120—surfeited himself with eating lampreys at Lyons, in Normandy, and died in December, 1135—was buried at Reading, and succeeded by his nephew, Stephen, though, by will, he left his dominions to his daughter Matilda.

Stephen, was crowned in December, 1135; taken prisoner at Lincoln, by the earl of Gloucester, in 1141, but was afterwards released for the earl of Gloucester, who was taken at Winchester. Stephen died at Dover, October, 1154; was buried at Feversham, and succeeded by—

Henry II., grandson of Henry I.; who, with his queen Eleanor, was crowned December, 1154; invaded Ireland, and conquered it, 1172: imprisoned his queen, on account of Rosamond, his concubine, 1173; did penance at Becket's tomb, 1174; took the king of Scotland prisoner, 1175; and had an amour with Alice of France, the intended princess of his son Richard, 1181. He died of grief, in Normandy, and was buried at Fonteveraud, in France, and was succeeded by his son,

Richard I., who was crowned September, 1189; conquered the island of Cyprus, and there married Berengera, daughter of the king

of Navarre; was arrested, near Vienna, by the duke of Austria, December, 1192; ransomed for 40,000*l.* and returned to England, March, 1193—wounded with an arrow at Chalus, in Normandy, died, and was buried at Fonteveraud, and succeeded by his brother, John.

John was crowned in May, 1199—divorced his wife, Avisa, and married Isabelle, daughter of the count of Angoselme—took his nephew, Arthur, prisoner, whom he murdered—imprisoned his queen, and banished all the clergy—was himself excommunicated, 1209—surrendered his crown to Pandolf, the Pope's legate, in May, 1213—absolved, in July following—obliged, by the barons, to confirm Magna Charta, in 1215—died, 1216—was buried at Worcester, and succeeded by his son,

Henry III. was crowned in Gloucester, October, 1216—and at Westminster, 1219—married Eleanor, daughter of the count of Provence, 1236—pledged his crown, plate, and jewels, for money, 1248—obliged, by his nobles, to resign the power of a sovereign, and sell Normandy and Anjou to the French, 1258—taken prisoner at Lewes, in May, 1264—wounded at the battle of Evesham, August, 1265—died, 1272—and was interred at Westminster, and succeeded by his son,

Edward I.—married Eleanor, princess of Castile—was wounded in the Holy Land, by a poisoned dagger, but recovered by his princess sucking out the venom, 1271—proclaimed king, on the death of his father, in 1272—landed in En-

gland in July, and crowned in August, 1274—reduced the Welch princes, 1282—conquered Scotland, 1296; and brought to Westminster, their coronation chair, &c.—married Margaret, sister to the king of France, 1299—died in 1307—was buried at Westminster, and succeeded by his son,

EDWARD II.—was created Prince of Wales, 1300, and was the first king of England's son that had that title—married Isabel, daughter of the king of France, January, 1308—crowned February, following—obliged by the barons to invest the government of the kingdom in 21 persons, March, 1310—declared his queen and all her adherents enemies to the kingdom, 1325—was dethroned, January, 1327, and succeeded by his son, Edward III.—was murdered at Berkley-castle, September following, and buried at Gloucester.

EDWARD III.—married Philippa, daughter of the earl of Hainault—accepted the crown on his father's forced resignation, and was crowned January, 1327—claimed the crown of France—confined his mother Isabella, and caused her favourite, Mortimer, to be hanged—defeated the Scots at Hallidown, July, 1333—invaded France, and assumed the insignia, 1339—defeated the French, at Cressy, August, 1346, and his queen took the king of Scotland prisoner the same year—took Calais after a year's siege, August, 1347—instituted the order of the Garter, 1349—he died at Richmond, June, 1377—was buried

at Westminster, and succeeded by his grandson, Richard II. son of

[*Edward*, the black prince, who was created duke of Cornwall, 1337, (the first in England that bore the title of duke) was created prince of Wales, 1344—defeated the French at Poictiers, September, 1356, and brought their king prisoner to London, in May, 1357—married Joanna, countess dowager of Holland—died of a consumption, 1376, and was buried at Canterbury.]

[*John of Gaunt*, fourth son of Edward III., —married Blanch, daughter of the duke of Lancaster, 1359, by whom he became possessed of that dukedom and title—she died 1369, and in 1372, he married the daughter of the king of Castile and Leon, and took that title—married Catharine Swinford, 1396, by whom he had four children in the lifetime of his former duchess, who were afterwards made legitimate by act of parliament; (from the eldest descended Henry VII.;) he died 1399, and was buried in St. Paul's, London.]

Richard II.—was crowned July, 1377—married Ann, sister to the emperor of Germany, 1382, who died 1395—married Isabella, daughter of the king of France, 1396—caused his uncle Thomas, duke of Gloucester, to be smothered, 1397—was taken prisoner by his cousin Henry, duke of Lancaster, and sent to the tower, in September, 1399—resigned his crown, September following, was succeeded by Henry IV.; and murdered in Pontefract castle, January, 1400:

He was buried at Langley, but removed by Henry V. to Westminster.

Henry IV., duke of Lancaster, grandson of Edward III. born 1367—married Mary, daughter of the earl of Hertford, who died 1394—fought with the duke of Norfolk, 1397, and was banished—returned to England, in arms, against Richard II. and deposed him, September, 1399—crowned October following, when he instituted the order of the Bath—married Joan of Navarre, widow of the duke of Bretagne, 1403—died of an apoplexy, in March, 1413—was buried at Canterbury, and succeeded by his son,

Henry V. who defeated the Welch in two battles, 1405—was crowned in April, 1413—claimed the crown of France, 1414—gained the victory of Agincourt, October, 1415—pledged his regalia for money to push his conquests, 1416—declared regent, and married Catharine of France, 1420—died at Rouen, August, 1422—was buried at Westminster, and succeeded by his only son,

Henry VI. who was proclaimed king of France, 1422—and crowned at Westminster, November, 1429—crowned at Paris, December, 1430—married Margaret, daughter of the duke of Anjou, 1445—ordered Humphrey, duke of Gloucester, his uncle, to be strangled, 1447—was taken prisoner at Northampton, July, 1460—deposed, March, 1461, by his fourth cousin, Edward IV.—restored to his throne, 1470—taken prisoner again, April, 1471—his queen and son taken prisoners, at Tewkesbury, by Edward, in May, of the same year, and his son

killed in cold blood—he was murdered in the Tower, June, following, and buried at Chertsey abbey, but removed to Windsor.

EDWARD IV. descended from the third son of Edward III. was elected king, in March, and crowned in June, 1461—sent the earl of Warwick to demand the sister of the queen of France, and in the meantime married Elizabeth, the widow of sir John Gray, 1461—was taken prisoner by the earl of Warwick, in Yorkshire, and expelled the kingdom, 1470—returned, and gained a great victory at Barnet, April, 1471—caused the duke of Clarence, his brother, who had joined the earl of Warwick, to be drowned in a butt of Malmsey wine, 1478—he died of an ague, April, 1483—was buried at Windsor, and succeeded by his son,

EDWARD V. who was conveyed to the Tower, May, 1483—deposed June following, and, with the duke of York, his brother, supposed to be murdered in the Tower, soon after—he was succeeded by his uncle,

RICHARD III. duke of Gloucester, brother to Edward IV. who was made protector of England, in May, elected king, in June, and crowned in July, 1483—slain in battle, at Bosworth field, August, 1485—was buried at Leicester, and succeeded by

HENRY VII, (see John of Gaunt)—defeated Richard III. and was crowned October, 1485—married Elizabeth, daughter of Edward IV, 1486—his eldest son, Arthur, died 1502—his queen died 1503—married his daughter Margaret to

James IV of Scotland, 1504—from whom, James I. of England descended—died of a consumption, at Richmond, in April, 1509—was buried at Westminster, and succeeded by his son,

HENRY VIII. who married Catharine, infanta of Spain, widow of his brother Arthur, 1509—and was crowned in June following—received the title of the Defender of the Faith, 1521—styled head of the Church, 1531—married Ann Boleyne privately, November, 1532—divorced Catharine, May, 1533—excommunicated by pope Paul, August, 1535—Catharine, his first queen, died January, 1536—beheaded Ann, his second queen, in May, and married Jane Seymour, who died in childbed, October, 1537—suppressed the religious foundations in England and Wales, 1539—married Ann of Cleves, in January, divorced her, in July, and married Catharine Howard, August, 1540—beheaded her and lady Rochford, February, 1542—married Catharine Par, his sixth wife, July, 1543—died of a fever, January, 1547—was buried at Windsor, and succeeded by his son,

EDWARD VI. who was crowned February, 1547—fell sick of the small-pox and measles, 1552—died of a consumption at Greenwich, July, 1553—was buried at Westminster, and succeeded, agreeably to his will, by his cousin,

[JANE GRAY, who was proclaimed July, 1535—deposed and sent to the tower, July following—beheaded, with lord Dudley her husband, February, 1554, by the order of,]

MARY, daughter of Henry VIII,—1516—

proclaimed in July, and crowned in October, 1553—married Philip of Spain, 1554—died of a dropsy, November, 1558—was buried at Westminster, and succeeded by her half sister,

ELIZABETH, who was crowned January, 1559—imprisoned Mary queen of Scots, who had fled to England for protection, 1568—solicited in marriage by the duke of Anjou, 1571—till he was finally rejected, 1581—beheaded Mary of Scots, February, 1587—defeated the Spanish armada, 1588—beheaded the earl of Essex, her favourite, February, 1601—died at Richmond, March, 1603—was buried at Westminster, and succeeded by

JAMES I. (see Henry VII.)—crowned James VI. of Scotland, 1567—married Ann, princess of Denmark, 1589—proclaimed king of England, in March, and crowned in July, 1603—first styled king of Great Britain, 1604—married his daughter, Elizabeth, to Frederick prince palatine of the Rhine, 1612—from whom George I. descended; lost his queen, March, 1619—died of an ague, at Theobalds, March, 1625—was buried at Westminster, and succeeded by his son,

CHARLES I. who married Henrietta of France, May, 1625—was crowned February, 1626—went to the house of Commons and demanded five members, January, 1642—raised his standard at Nottingham, August following; gave himself into the hands of the Scots at Newark, May, 1636—sold by the Scots for 200,000*l.* August following; escaped from Hampton-court, July, 1648—confined in Windsor castle, December,

following; removed to St. James', January, 1649—was brought to trial the next day, condemned the 27th, beheaded at Whitehall the 30th, and buried at Windsor.

Oliver Cromwell was made protector, December, 1653—elected king, but refused the title, May, 1657—died at Whitehall, September, 1658.

Richard Cromwell was proclaimed protector, September, 1658—deposed April, 1659—died at Chesnut in Hertfordshire, July, 1712.

CHARLES II. son of Charles I.—escaped into Holland, 1648—landed in Scotland, 1650—crowned at Scone, January, 1651—restored to his throne, May, 1660—crowned in London, April, 1661—married Catharine infanta of Portugal, May, 1662—died of an apoplexy, February, 1685—was buried at Westminster, and succeeded by his brother,

JAMES II. who married Ann Hyde, 1660—who died 1671—married the princess of Modena, 1673—crowned April, 1685—fled from his palace, and left England, in December, 1688—landed at Kinsale, in Ireland, March, 1689—returned to France, July, 1690—died at St. Germain's, August, 1701.

[*James*, duke of Monmouth, natural son of Charles II. landed in England, and was proclaimed king at Taunton, June, 1685—was defeated near Bridgewater, and beheaded on Tower-hill, in July, following.

Mary II. (daughter of James II.) was married to

WILLIAM III. prince of Orange, who landed in

England with an army, November, 1688—proclaimed king, and his princess queen, of England, in February, and crowned in April, 1689—landed at Carrickfergus, June, and defeated James II. at the Boyne, July, 1690—lost his queen, December, 1694—fell from his horse, and broke his collar-bone, February 1702—died at Kensington, March following; was buried at Westminster, and succeeded by his sister-in-law.

ANNE, second daughter of James II. was married to prince George of Denmark, July, 1683—crowned April, 1702—lost her son George by a fever, July, 1703—settled her revenue of the first-fruits and tenths on the poorer clergy, 1704—assented to the act of union with Scotland, March, 1707—lost her husband, October, 1708—died of an apoplexy, August, 1714—was buried at Westminster, and succeeded by,

GEORGE I. elector of Hanover, (see James I.)—married Sophia, daughter of the duke of Brunswick-Zell, 1682—created duke of Cambridge, October, 1706—proclaimed in August, and landed at Greenwich, in September, and was crowned, in October, 1714—his queen died in Germany, November, 1726—he died of a paralytic disorder at Osnaburg, June, 1727—was buried at Hanover, and succeeded by his son,

GEORGE II.—married the princess Wilhelmina Caroline Dorothea of Brandenburg-Anspach, 1704—crowned October, 1727—married his son, Frederick, to Augusta, princess of Saxe-Gotha, April, 1736—lost his queen, November, 1737—defeated the French at Dettingen, June, 1743—

lost his son Frederick, March, 1751—died suddenly at Kensington, October, 1760—was buried at Westminster, and succeeded by his grandson.

George III. who was proclaimed in October, 1760—married Charlotte Sophia, princess of Mecklenburg-Strelitz, September, 1761—and both crowned September following—died, and was succeeded by his son,

George IV., who was proclaimed king, January 31, 1821, and now reigns.

PHYSIC.

Q. What is Physic?

A. Physic, or Medicine, is the knowledge of those things, by the application of which, the body is either preserved in a healthy state, or restored thereto when disordered.

Q. How is the word Physic derived?

A. The word Physic is derived from a Greek word [*phusis*] signifying *nature;* because medicine consists, principally, in the observation of nature.

Q. What are the principal branches of this science?

A. The principal branches of Physic are, Anatomy, Surgery, Pharmacy, Chemistry, and Botany.

Q. What is Anatomy?

A. Anatomy is the art of dissecting the solid parts of the human body; in order to discover their structure and economy, their office and use, and their concern in health or in disease.

It is of use, not only in medicine, but also in statuary and painting.

Q. What is Surgery?

A. Surgery is a branch of the healing art, and consists in manual operations, by the aid of suitable instruments, for the cure of wounds, dislocations, fractures, tumours, ulcers, and the like. It has the advantage of medicine, in the solidity of its foundation, the certainty of its operations, and the sensibility of its effects.

Q. What is Pharmacy?

A. *Pharmacy* teaches the choice, preparation, and mixture of medicines; and consists in the knowledge and management of the several parts of the materia medica, now in the hands of the apothecaries.

Q. What is Chemistry?

A. *Chemistry* is the art of separating the several substances of which mixed bodies are composed, and of composing other bodies by the mixture of different ingredients: or,

Chemistry is the art of analizing natural bodies, or reducing them to their first principles, and thereby discovering their hidden virtues; with a view to philosophy, physic, and domestic uses.

Q. Is not Chemistry, then, a very useful and extensive science?

A. Yes; all bodies contained in the vegetable, animal, and mineral kingdoms, come under the notice of Chemistry; and decoctions, infusions, exhalations, calcinations, distillations, crystallizations, elixirs, tinctures, &c. are the results of its operations.

Q. What is Botany?

A. Botany is that science which treats of plants, with their varieties, forms, virtues, and uses in medicine, and other affairs of life.

The grand divisions of the vegetable family, are the herbaceous, the shrubby, and the arborescent, or tree.

But the great naturalist, Linnæus, in his classification founded on the sexual system, extends the divisions of vegetables into 24.

All the varieties of grain, wood, hemp, flax, cotton, sugar-cane, tea, coffee, spices, &c. come under the notice of this science, which is one of the most pleasing that can occupy the human mind.

Q. You mentioned the vegetable, animal, and mineral kingdoms: what are they?

A. Naturalists, in order to give some arrangement to the numerous objects claiming their attention, have divided the productions of this globe into three great classes, which they denominate the three kingdoms of nature:

1. The *vegetable kingdom;* as above mentioned, and comprehending whatever vegetates, or grows out of the earth; having root, stem, or leaf, flower, fruit, or seed.

2. The *animal kingdom: embracing* all organized beings; possessing life, sensation, and the power of motion. And,

3. The *mineral kingdom:* comprehending all bodies destitute of animal or vegetable life; which are thus classed. 1. Earths and stones;

2. salts; 3. inflammables; and 4. metallic substances or ores. This last branch of Natural History is called Mineralogy. [See folio 40.]

CHEMISTRY.

Q. What is Chemistry?

A. Chemistry is that science which teaches us how to ascertain the nature and properties of bodies.

Q. By what means, may the nature and properties of bodies be ascertained?

A. The nature and properties of bodies may be ascertained by *analysis*, or decomposition, and *synthesis*, or composition.

Q. How many kinds of bodies are there?

A. There are only two kinds of bodies—*simple* or elementary, and *compound*. A *simple* or *elementary body*, is one that consists of only one kind of substance; and is therefore incapable of *decomposition;* as *caloric*, *gold*, *carbon*, &c. A *compound body* is such as consists of more than one simple, or elementary body; as *air*, *water*, &c.

Q. How many simple bodies do modern chemists enumerate?

A. Modern chemists enumerate nearly fifty simple bodies; a few of which are the following: *light*, *caloric*, *oxygen*, *nitrogen*, *hydrogen*, *carbon*, *sulphur*, *phosphorus;* (two alkalies,) *potash* and *soda;* (nine earths,) *lime*, *magnesia*, *strontites*, *barytes*, *silex*, &c. (twenty-five met-

als,) *gold, platina, silver, mercury, copper, iron, tin, lead, nickle, zinc,* &c.

Q. What is understood by the term Affinity, among Chemists?

A. *Affinity* is that particular tendency which the constituent parts of bodies have to blend or unite with each other. When this tendency exists between bodies of the same nature, it is called the *affinity* or *attraction* of *aggregation;* when between bodies of different natures, it is denominated the *affinity* of *composition*, or *chemical affinity.*

Note. As the *affinity*, or *attraction* of aggregation, unites particles of similar natures, without changing their original properties, the result of such a union, must be a body of the same kind as the particles of which it is composed: but, the compound formed by the chemical union of dissimilar particles, will possess properties totally different from those of its constituent principles. *Sulphuric acid* and *soda*, for instance, though two powerfully corrosive substances, form, when united, the mild and cooling *glauber salts.*

Q. Is not chemical *affinity* stronger between some substances than others?

A. Chemical affinity is much stronger between some substances than others. For instance, salt and water being put together, will unite, because they have an affinity for each other; but, if a third substance be added, as alcohol, (spirits of wine) for which the water has a stronger affinity than for salt, it will quit the salt which it holds

in solution, and unite with the alcohol; leaving the salt *precipitated* or fallen to the bottom of the vessel.

Q. In how many states, may bodies exist?

A. Bodies may exist in three states; *solid*, *fluid*, and *aeriform*. Thus, *ice* is water, in a *solid* form; apply a moderate heat, it becomes a *fluid*—water; apply a strong heat, and it assumes the *aeriform state*—steam or vapour.

Q. What is Light?

A. Light is a simple substance, divisible, by the prism, into seven primitive colours; viz. *red*, *orange*, *yellow*, *green*, *blue*, *indigo*, and *violet*. It is refrangible, and has considerable influence on many chemical operations. *Solar* light is here spoken of.

Vegetables derive their colour, taste, and odour, from *light;* hence, warm climates are the most productive of aromatic plants, gums, &c.

The leaves of vegetables yield oxygen, or vital air, during the day; but emit noxious air at night.

Q. What have you to say of *heat* or *caloric?*

A. The *matter of heat* or *caloric*, is an extremely subtle fluid, that enters, with facility, and pervades, all substances exposed to its influence; and always tends to equilibrium.

The powers of attraction, uncontrolled, would surround us with only *solid compact* bodies: it is to the opposing agency of caloric, we are indebted for the varieties of consistence, under which bodies present themselves to our observation. When *attraction* or *cohesion* prevails,

bodies are seen in a *solid state:* when caloric predominates, in a small degree, they are in a *liquid form;* but, when in a high degree, they generally assume the *gaseous,* or *aeriform state.*

Q. Does *caloric* pass with equal facility through all substances?

A. No; caloric passes rapidly through metals, less freely through wood or glass, and still more slowly through any woolen substance. Hence, these, and other bodies, are called *good* or *bad conductors,* accordingly as they receive or transmit this fluid more or less rapidly.

Q. Is there not a diversity in the capacity of bodies, for receiving caloric?

A. There is a diversity in the capacity of bodies for receiving caloric: place, for instance, an equal weight of *lead,* of *chalk,* and of *milk,* in a heated oven, and each will require a different quantum of caloric to raise it to the temperature of the oven. The lead will receive least; the chalk next; and the milk most.

Note. When a body passes from a *solid* to a *fluid,* or from a *fluid* to a *gaseous state,* caloric is absorbed, and becomes *latent* in the absorbing body. When, on the contrary, a body passes from a *gaseous* to a *fluid,* or from a *fluid* to a *solid state,* heat is given out, and becomes sensible heat.

Q. We often hear the term *gas;* as oxygen *gas,* hydrogen *gas,* &c.—pray what is a *gas?*

A. A *gas* is an *aeriform fluid;* consisting of some substance chemically combined with caloric, and capable of existing permanently in this

state, under the pressure, and at the temperature of the atmosphere. Every individual *gas* is, therefore composed of two parts; first, the particular substance with which the caloric is combined, and which forms the *basis* of the *gas;* and, secondly, the caloric itself.

Q. Is not water, then, or any other substance, when evaporated by heat, properly called a *gas?*

A. No; in mere vapour, the union of the caloric, with the substance evaporated, is so slight, that the caloric seizes and enters the first colder body it meets, and leaves the substance held in solution, to return to its original form. But, in *gas*, the union of caloric with the basis, or volatilized substance, is such, as no temperature of the atmosphere can affect.

This union can be destroyed only by the application of some chemical agent, which has a stronger affinity for one of the constituents of the gas, than they have for each other. Every gas is intangible, elastic, and invisible.

All bodies, whether solid or liquid, when volatilized by heat, assume either the *state of vapour*, or that of *gas*.

Q. What is *Oxygen?*

A. *Oxygen*, though proved by experiment to be a simple, and very generally diffused principle, has never been found in a separate state. It is, therefore, known only by its effects. Several substances, when combined with oxygen, form acids; and many acids, on being deprived of their oxygen, cease to be such: hence, it is inferred, that oxygen is the *acidifying principle.*

Q. Please to give me some account of *oxygen gas*, or *vital air*, as it is sometimes called.

A. *Oxygen gas* is more ponderous than atmospheric air, of which, it forms more than one fourth part: it is essential to combustion, to animal life, and to the growth of plants; it exists in water, in the proportion of 85 in 100 parts; is found combined with many of the metals, and is a constituent principle in the greater number, if not in all, vegetable and animal substances.

Oxygen gas is obtained from nitre, by distillation; and also from the black oxyde of manganese, moistened with sulphuric acid, and exposed to heat. A variety of beautiful and interesting experiments are made with this gas.

In every combustion, there is an absorption of *oxygen*—a disengagement of light, and heat, and an increase of weight, in the products of combustion, equal to the weight of the oxygen absorbed.

Q. What is *Nitrogen?*

A. *Nitrogen* or *azote*, is the radical of the nitric acid; and, like oxygen, is never found but in a state of combination.

Nitrogen gas is a combination of nitrogen with caloric. It is lighter than atmospheric air: of which it forms 77 parts in a hundred. It immediately extinguishes animal life, or a lighted taper immersed in it.

The best method of obtaining *nitrogen gas*, is, to expose a quantity of atmospheric air in a vessel, inverted over a mixture of iron filings

and sulphur. The oxygen will be absorbed, and the *nitrogen gas*, or *azote*, left behind.

Q. What kind of substance is Hydrogen?

A. *Hydrogen* is not to be obtained in its pure, concrete state. We are acquainted with it, therefore, only in its gaseous form, as we are with *oxygen* and *nitrogen*.

Hydrogen gas, or, as it is more commonly called, *inflammable air*, is a component part of water: it is twelve times lighter than common air; will not, when alone, support combustion; and is destructive to animal life. In contact with common air, it burns brilliantly; and, mixed with a proportion of oxygen, explodes with great violence.

Hydrogen gas is obtained, plentifully, by putting a quantity of small nails into a vial, covering them with water, and *gradually* adding sulphuric acid.

The oxygen of the water unites with the iron, and forms an oxyde of iron: this oxyde is dissolved by the sulphuric acid, and sulphate of iron is produced; while the hydrogen of the water escapes, in the form of *gas*, or *inflammable air*.

This gas, combined with oxygen, and ignited, yields the strongest heat that can, in any way be produced.

Q. What is Carbon?

A. It appears, from a variety of experiments, that the diamond is nothing more than pure *Carbon*, in a state of crystallization.

Charcoal is *Carbon;* though in a less pure,

and more imperfect state. Carbon is *obtained* from animal and vegetable substances, by combustion; is unalterable and indestructible by time; and, in close vessels, by the greatest heat.

Q. What of *Carbonic acid?*

A. *Carbonic acid,* or *fixed air,* is found in three states; viz. 1, in a state of *gas;* as, in wells, tombs, cellars, &c. 2, in a state of *mixture;* as in mineral waters: and 3, in a state of *combination;* as, in *limestone, chalks, marble, magnesia, alkalies,* &c. *Carbonic acid gas* consists of 28 parts of *carbon* and 72 of *oxygen,* with a portion of caloric. It is much heavier than atmospheric air, or than any of the other *gases;* so that it may be poured, as a liquid, from one vessel to another. It extinguishes flame, destroys animal life, turns blue vegetables, red, neutralizes alkalies, and precipitates lime-water.

Carbonic acid gas is readily procured by pouring sulphuric acid, diluted with water, upon powdered chalk. The sulphuric acid unites with the *chalk,* and forms sulphate of lime (or plaster of Paris;) while the carbonic acid is disengaged, and escapes in the form of *gas.*

Water may be made to absorb three times its own bulk of this gas; from which it acquires an agreeable, acidulous taste.

Q. What have you to say of *atmospheric,* or *common air?*

A. Atmospheric, or common air, is not, as has been supposed, a simple substance, but a *compound body;* consisting of about ¼ *oxygen*

gas, and $\frac{3}{4}$ *nitrogen gas*, with a small portion of *carbonic acid gas*,—say one hundreth part. It is *invisible*, *ponderous*, *inodorous*, *elastic*, and *insipid*.

A considerable portion of this air is decomposed in its passage through the lungs, during respiration. The oxygen of the air unites with the blood, and gives it a bright vermilion colour. This is gradually lost, during the circulation; and the blood, assuming a dark purple, returns through the veins, to the lungs: where, it again takes its florid hue, from fresh supplies of oxygen. The oxygen, thus taken into the circulation, gradually evolves caloric, as it passes through the system; hence, what is called *animal heat*.

A person, breathing, exhausts the oxygen of one gallon of atmospheric air, in one minute; and the same quantity will support the combustion of an ordinary candle for the same length of time, and no longer.

Q. What is water?

A. Water is a transparent fluid; composed of 15 parts of *hydrogen gas*, and 85 of *oxygen gas*, by weight; or 2 of hydrogen to 1 of oxygen, in bulk. If these two gases be mixed in these proportions, and fired by means of an electric spark, a quantity of water will be generated, just equal, in weight, to the gases. Water exists in almost all bodies, of the animal, vegetable, and mineral kingdoms. At 32 degrees of Fahrenheit's thermometer, water is frozen: above

this temperature, it assumes a liquid form; and at 212° it is converted into vapour.

River, or even rain water, though purer than any other, is never found entirely free from a portion of salts, acids, &c. but may be purified by distillation.

Water, by passing through an ignited iron tube, will be decomposed; the oxygen will unite with the iron, and the hydrogen will escape, in the form of gas. But a better mode of decomposing it, is that mentioned for obtaining *hydrogen gas.*

Q. What is Sulphur?

A. Sulphur is a simple substance, of an orange yellow colour. It burns with a blue flame, and exhales a strong, penetrating odour.

Sulphur burned with substances containing oxygen, forms *sulphuric acid:* which acid, united to certain bases, forms salts, called sulphates; as, *sulphate of soda*, or *Glauber salt; sulphate of potash*, &c.

Q. What kind of substance is Phosphorus?

A. Phosphorus is a substance of the consistence of wax, of a flesh colour, and, when pure, transparent. It is luminous in the dark, and soluble in alcohol, and in the essential oils. It is procured from bones, which contain phosphate of lime.

Phosphorus takes fire at about 100 degrees of Fahrenheit. It then combines with the oxygen of the atmosphere, and yields *phosphoric acid.*

Q. What of Alkalies?

A. Alkalies have an acrid, unpleasant taste;

change blue vegetable colours into green, (indigo excepted;) effervesce with some acids; and, by combination with them, form neutral salts with all. They render oils miscible with water, in forming soaps.

Q. How many fixed alkalies are there?

A. There are two fixed alkalies; *potash*, or the *vegetable alkali*, and *soda*, or the *mineral alkali*. There is also a *volatile alkali—ammoniac*.

The *vegetable alkali*, potash, according to Sir Humphrey Davy, the celebrated English chemist, is composed of oxygen, and a metallic basis, called by him *potasium*. It is obtained from the ashes of vegetables, and from the lees of wine.

The *mineral alkali*, soda, is found in a native state, in Egypt, but is generally obtained from the ashes of marine plants. It is said, by Davy, to be similar in its formation to potash; having for its basis a metal, which he has named *sodium*.

Alkalies readily combine with sulphur. If pure liquid alkali be digested upon sulphur, the mixture becomes reddish, and is called *liver* of *sulphur*, or *sulphuret of alkali*. This liver of sulphur dissolves metals; even gold itself.

Vegetable and mineral alkalies have the property of forming glass, with silex; without being volatilized by heat.

The *volatile alkali*, ammoniac or hartshorn, is composed of 193 parts of hydrogen and 807 of nitrogen, in 1000. It is usually obtained by

the distillation of animal substances; as, hoofs, horns, bones, &c.

Q. What are the constituents of *alcohol?*

A. *Alcohol,* or *spirits of wine,* is a compound of carbon, hydrogen, and oxygen.

Q. Of what do *oils* consist?

A. *Oils* consist of carbon and hydrogen; and are divided into fixed and volatile. The former are obtained by expression—the latter, by distillation.

Q. How are acids formed?

A. *Acids* are formed by the combination of oxygen with certain bases, which give name to the compound: as, *nitric acid;* which is composed of about 80 parts of oxygen, and 20 of nitrogen.

Q. What are the general properties of acids?

A. *Acids* have a sour, stiptic taste; effervesce with alkalies, and change blue vegetable colours into red, indigo excepted. They are about forty in number.

Q. What kind of substance is *alumine?*

A. *Alumine,* or *pure clay,* is soft to the touch, and adhesive to the tongue; forms a paste with water, dissolves in every acid, hardens and contracts by fire, and is twice the weight of water.

Q. How are metallic substances distinguished?

A. Metals are distinguished by their gravity, their opacity, or their brilliancy. They are found in the bowels of the earth, in a native or virgin state; in a state of oxydation, or of combination.

All metals are soluble in acids; and being so dissolved, they form *metallic salts.*

Gold, silver, and platina, are considered as *perfect metals*, being oxydized with more difficulty than the others; which are called *imperfect metals.* (See mineralogy.)

Q. What are Vegetables?

A. Vegetables are organized, living substances; possessing digestive and secreting organs. Vegetables may be considered as the lowest order of animated existences. Like animals, they digest their food, and propagate their species. They will grow and vegetate in air in which animals have perished. This fact evinces, that, though light is essential to their proper growth, yet, *atmospheric air* is not.

The constituent principles of vegetables are more numerous and complicated than those of minerals. They are defended by a general covering, of bark; which is analogous to the skin of animals, and consists of three parts—the *cuticle*, the *cellular*, and the *corticle.*

The leaves perform an important office in the economy of vegetables; and have been compared to the lungs of animals. They extract, from the atmosphere, the same principles which the roots draw from the earth.

Q. What does the term, animal, imply?

A. The term animal, in a general sense, is applied to every thing that is supposed to be alive to the sensations of pleasure and pain. Such are, *men, quadrupeds, birds, fishes, reptiles*, and *insects.*

Linnæus says, that stones grow; vegetables grow and live; animals grow, live, and feel.

The constituent radical principles of animals, are carbon, hydrogen, nitrogen, oxygen, lime, and phosphorus.

Having thus briefly touched upon a very few of the numerous subjects of chemical investigation, we conclude this article, by observing, that there is, perhaps, no branch of science which more wonderfully displays the extent of the Divine wisdom and goodness than this; and which, at the same time, is more calculated to interest and gratify the inquisitive mind.

Note. This brief abstract is here introduced, principally, with a view of awaking, in youth, a spirit of inquiry; and, thereby, leading them to a more minute and useful investigation of the various objects by which they are surrounded.

THE END.